

# Medical Times

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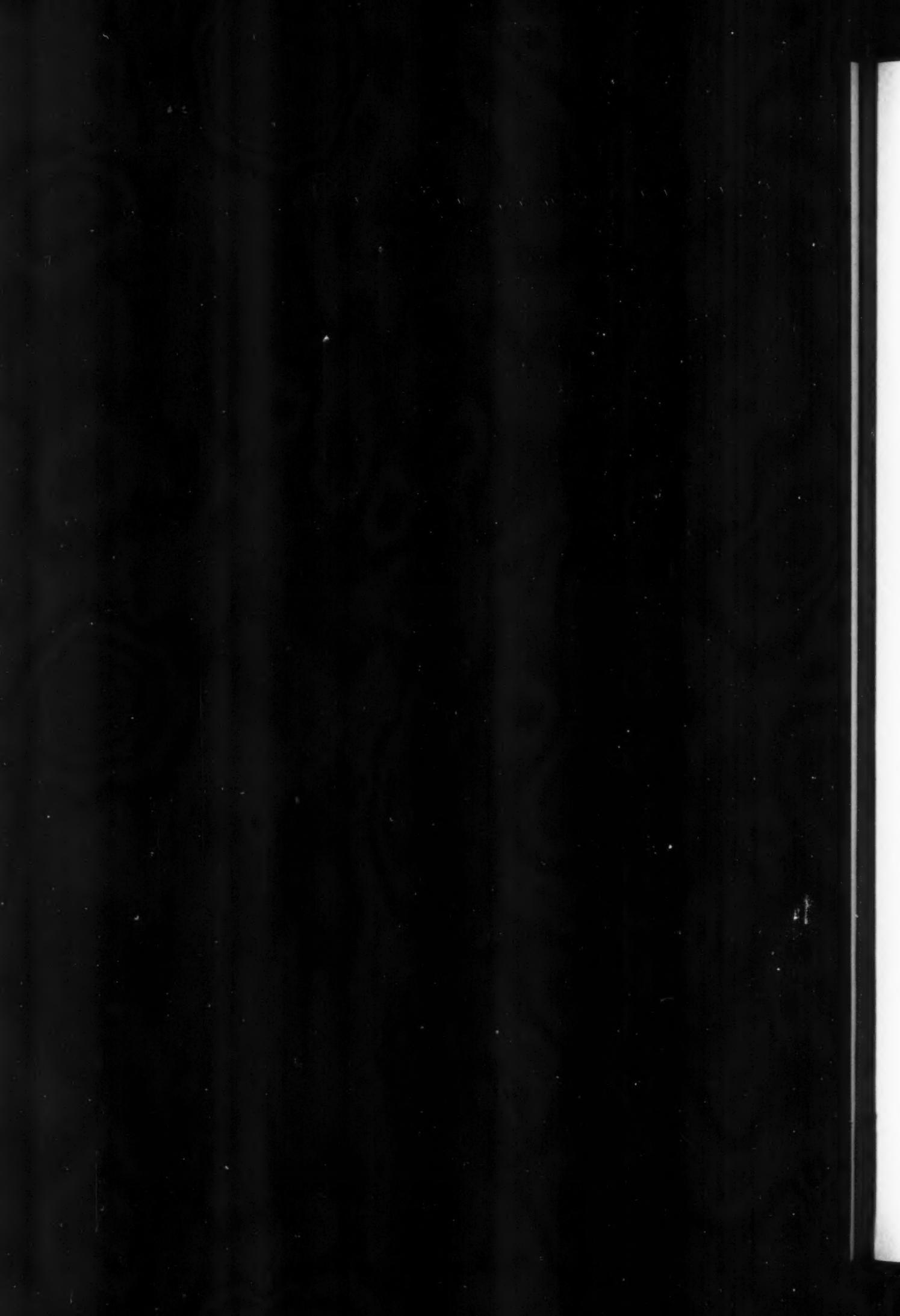


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### THE JOURNAL OF THE AMERICAN MEDICAL PROFESSION

A Monthly Record of Medicine, Surgery and the Collateral Sciences

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## The Cancer Situation in the State of New York

*The Statistics for 1929 and 1930 and the Annual Average for the Five-Year Periods 1924-28 and 1925-29*

JOHN M. SWAN, M.D., F.A.C.P.

EXECUTIVE SECRETARY OF THE NEW YORK STATE COMMITTEE OF THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER

Rochester, N. Y.

IN 1929 15,444 persons died from cancer in all its forms in the State of New York, which gives a death rate of 121.8 per 100,000 population. In 1930 the total deaths were 15,514, or a death rate of 122.7 per 100,000 population. In the latter year the population was estimated to be 12,639,653 as of July 1. The United States Census as of April 1, 1930, gave the figure at 12,588,066.

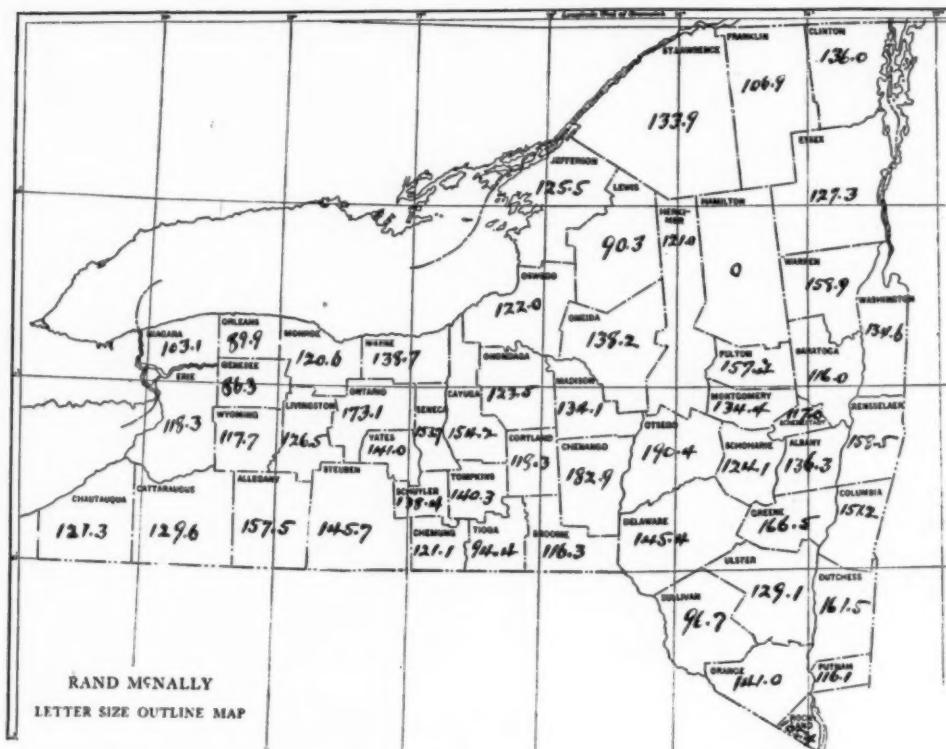
In the State exclusive of New York City the total deaths were 7,296 in 1929 and 7,401 in 1930. The rates were 130.3 in 1929 and 130.4 in 1930.

The annual average of total deaths from cancer for the five-year period 1924-28 in the State as a whole was 13,729; for the period 1925-29 it was 14,200. The total deaths in 1929 were 1,304 above the annual average, and the rate 6.6 above the annual average. In 1930 the in-

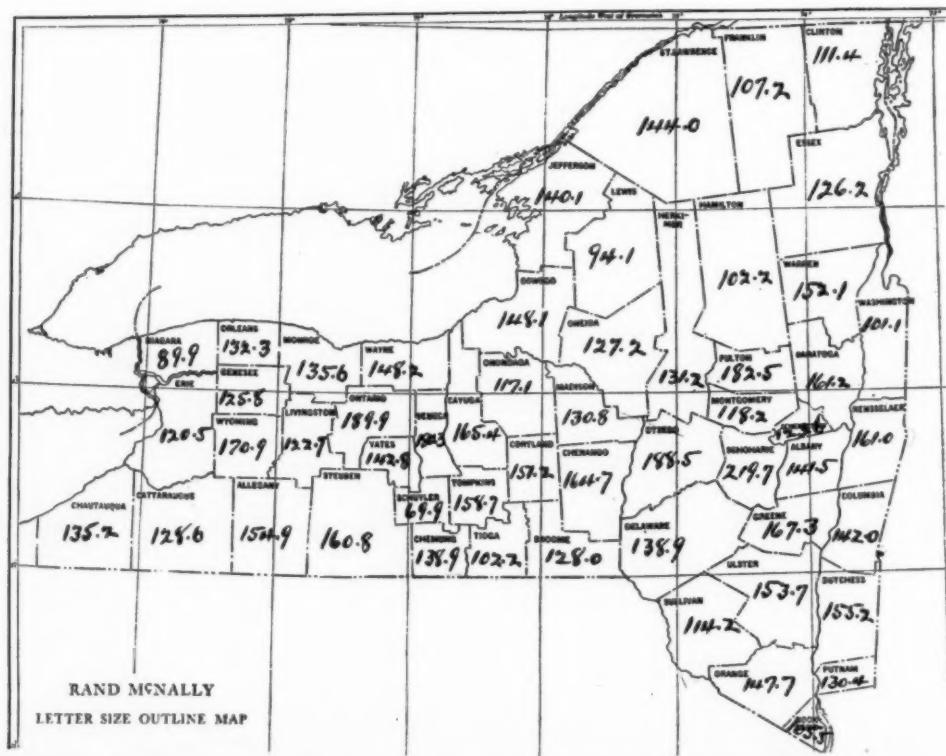
crease was 1,314 in total deaths and 4.6 in the rate. The increase in the death rate above the annual average was 5.4 per cent in 1929 and 3.9 per cent in 1930.

In the State exclusive of New York City the annual average of total deaths for the five-year period 1924-28 was 6,618; for the period 1925-29 it was 6,831. The total deaths in 1929 were 575 above the annual average, and the rate 3.7 above the annual average. In 1930 the increase in total deaths was 570 above the annual average, and the rate 5.0 above the annual average. The increase in the death rate was 3.0 per cent for 1929 and 4.0 per cent for 1930.

The following tables and maps will show the total deaths and the death rates per 100,000 population for the counties.



MAP SHOWING THE DISTRIBUTION OF CANCER DEATH RATES BY COUNTIES, 1929



MAP SHOWING THE DISTRIBUTION OF CANCER DEATH RATES BY COUNTIES, 1930

## CANCER DEATHS AND DEATH RATES PER 100,000 POPULATION IN THE COUNTIES

County	1929		1930	
	Total	Rate	Total	Rate
Albany	280	136.3	301	141.5
Allegany	58	157.5	59	154.9
Broome	176	116.3	189	128.0
Cattaraugus	98	129.6	93	128.6
Cayuga	102	154.2	107	165.4
Chautauqua	167	121.3	171	135.2
Chemung	93	121.1	104	138.9
Chenango	66	182.9	57	164.7
Clinton	65	136.0	52	111.4
Columbia	69	151.2	59	142.0
Cortland	38	118.3	48	151.2
Delaware	64	145.4	57	138.9
Dutchess	171	161.5	164	155.2
Erie	847	118.3	923	120.5
Essex	41	127.3	43	126.2
Franklin	51	106.9	49	107.2
Fulton	74	157.4	85	182.5
Genesee	41	86.3	56	125.8
Greene	50	166.5	43	167.3
Hamilton	0	0	4	102.2
Herkimer	83	121.0	84	131.2
Jefferson	111	125.5	117	140.1
Lewis	23	90.3	22	94.1
Livingston	52	126.5	46	122.7
Madison	56	134.1	52	130.8
Monroe	510	120.6	577	135.6
Montgomery	86	134.4	71	118.2
Niagara	149	103.1	135	89.9
Oneida	286	138.2	253	127.2
Onondaga	354	123.5	343	117.1
Ontario	99	173.1	103	189.9
Orange	185	141.0	193	147.7
Orleans	29	89.9	38	132.3
Oswego	89	122.0	103	148.1
Otsego	92	190.4	88	188.5
Putnam	16	116.1	18	130.4
Rensselaer	194	158.5	193	161.0
Rockland	68	105.4	63	105.5
St. Lawrence	127	133.9	131	144.0
Saratoga	81	116.0	102	161.2
Schenectady	143	117.0	155	123.6
Schoharie	27	124.1	43	219.7
Schuyler	19	138.4	9	69.9
Seneca	40	153.7	45	180.3
Steuben	123	145.7	133	160.8
Sullivan	44	96.7	40	114.2
Tioga	26	94.4	26	102.2
Tompkins	60	140.3	66	158.7
Ulster	115	129.1	123	153.7
Warren	57	158.9	52	152.1
Washington	65	134.6	47	101.1
Wayne	75	138.7	74	148.2
Wyoming	37	117.7	49	170.9
Yates	26	141.0	24	142.8

In 1929 Otsego County had the highest death rate of any county in the State, exclusive of New York City,—190.4 per 100,000 population. In 1930 Schoharie County with a death rate of 219.7 had the highest rate.

The lowest death rate in 1929 was given by Hamilton County, with no deaths from cancer; Orleans County was next with a death rate of 89.9. In 1930 the lowest death rate was recorded from Schuyler County with 69.9 per 100,000 population.

In 1929 thirty-four up-state counties had a death rate higher than that of the State as a whole, and twenty counties had a lower rate than that of the State as a whole. In 1930 forty counties had a higher and thirteen had a lower death rate than that of the State as a whole. In one county the death rate was the same as that for the State as a whole.

In the counties in which the teaching institutions are located the following figures are recorded:

## Death Rates per 100,000 Population

	1929	1930
Albany County	136.3	141.4
Albany City	159.2	168.1
Onondaga County	123.5	117.1
Syracuse	138.4	124.3

Monroe County	120.6	135.6
Rochester	130.3	148.1
Erie County	118.3	120.5
Buffalo	127.3	135.0

## THE FIVE YEAR AVERAGE

Years	Total Deaths	Rate	Percent of Increase of Rate over the Five Year Average
1917-1921	10,296	99.6	
1922	11,605	109.0	9.4%
1923	12,184	113.3	13.8%
1919-1923	11,166	105.9	
1924	12,677	116.7	10.2%
1920-1924	11,691	108.8	
1925	13,117	117.4	7.9%
1921-1925	12,224	112.3	
1926	13,560	119.8	6.7%
1922-1926	12,714	115.3	
1927	14,254	124.3	7.8%
1923-1927	13,239	118.5	
1928	14,622	125.9	6.2%
1924-1928	13,729	121.3	
1929	15,033	127.9	5.4%
1925-1929	14,200	118.1	
1930	15,514	122.7	3.9%

The study of the statistics of cancer shows that that group of diseases, which some of the members of our Committee prefer to call malignant disease or malignant tumors, is second in some years and third in other years in the list of the causes of death in the State of New York. It also shows that the total deaths and the death rates are increasing annually.

On the other hand, the population of the State is increasing and the number of people living into the "cancer age," that is, those decades in which malignant tumors are most commonly met with, is increasing.

Cancer forms about ten percent of all the deaths in the State of New York. Heart disease furnishes twenty-five percent of the deaths.

The percentage of increase in the death rate over the five-year average is not increasing (13.8% in 1923; 3.9% in 1930).

The mortality from malignant tumors in 1930 is nowhere near as high as the mortality from pulmonary tuberculosis was in 1900 (186.5 per 100,000).

From the statistical viewpoint it seems to me that there should be every encouragement for the study of the early diagnosis of malignant tumors and particularly for the diagnosis and removal of precancerous lesions.

The statistical information herein discussed has been obtained from Supplement to the *Vital Statistics Review* of the New York State Department of Health, 1930, V. 10, No. 13; 1931, V. 11, No. 13, and from the Fiftieth Annual Report of the State Department of Health for the Year Ending December 31, 1929, V. 2, Division of Vital Statistics.

457 Park Avenue.

## Advantages of Treatment of Hematemesis by Retention Catheter

1. Initial gastric lavage removes the blood clots and acid stomach secretion without unduly disturbing the patient.
2. The stomach is kept free from acid secretion by continuous siphonage for a period of three days.
3. Recurrent bleeding can be detected at once and the hemostatic employed; if the bleeding is not checked, surgical intervention is advised.
4. Nausea and vomiting are prevented, and the patient is remarkably free from discomfort.
5. On the third or fourth day the tube may be passed on through the pylorus and duodenal feeding may be employed, if
6. The colon can be cleaned of bloody feces and utilized for saline proctoclysis without fear of inciting fresh gastric hemorrhage is due to gastric or duodenal ulcer.

Horace W. Soper, M.D.—*J. A. M. A.*, Sept. 12, 1931.

## Chronic Jaundice

A Japanese physician tells the story of an American physician who treated a patient for jaundice over a period of three years and then discovered that he was a Jap.

## Circulatory Failure and Heart Failure

EDWARD E. CORNWALL, M.D., F.A.C.P.

Brooklyn, New York

**C**IRCULATORY failure is generally considered to be heart failure. The motive power of the circulation is generally believed to reside in the myocardial contractions, in the pump action of the heart, whose intermittent squirts are transformed into a continuous flow by the elasticity of the large arteries. The muscular activities of the blood vessels are generally believed to be regulative of the circulation but not directly motive.

Not in harmony with this almost universally held view of the mechanics of the circulation is a theory which has been advanced (notably by R. M. Wilson in 1918, in his book, *Hearts of Man*) regarding certain functions of the blood vessels. According to this theory, vascular activities, essentially peristaltic in nature, regularly contribute a motive factor to the circulation.

This theory has not been accepted by the scientific world as proved and established. It has been generally ignored. Yet because it seems to help in explaining some problems of the circulation, it may be well to keep it in mind. Among the problems of the circulation on which it might have a bearing would seem to be the following.

The circulation of the blood from the heart back to the heart in twenty-three seconds is hard to explain on the basis of motive power supplied only by the regular cardiac contractions aided by the respiratory vacuum and the occasional pressure of skeletal muscles. In the ramifying arterial tree whose cross section in the capillary field has been stated to be eight hundred times the cross section of the aorta near the heart, enormous friction must develop. After overcoming this friction how much of the force of the heart pump would be left to drive the blood back to the heart through the reversely arranged venous tree? Would the thin-walled veins be able to maintain themselves as sufficiently rigid tubes? Would not they dilate under pressure? Would not the blood tend to stagnate in the peripheral region? Is not peripheral help needed to get the blood back to the heart?

It is a matter of observation that, in general, the circulation is carried on more easily or more effectively in conditions of low blood pressure than in conditions of high blood pressure. This does not seem to be in harmony with the conventional notion of the mechanics of the circulation, but it does seem to harmonize with the theory of vascular peristalsis as a motive factor in the circulation. The writer has suggested in a previous publication,\* that essential hypertension may be a compensatory reaction on the part of the circulatory mechanism, by which diminution of the motive factor of the circulation supplied by peristaltic action of the small arteries, due to disease or dysfunction of the latter, is made up for by increased action of the heart and stiffening of the small arteries.

The action of digitalis in reducing edema due to circulatory failure is suggestive in this connection. The point desired to be brought out here is illustrated by the following case. A man with old rheumatic heart disease, whose heart was much dilated, liver considerably enlarged and lower extremities edematous, but whose

pulse was not particularly rapid or irregular, was digitalized. The edema disappeared and the liver returned to nearly its normal size, but there was no reduction in the dilatation of the heart and very little change in the pulse rate; and, here is the significant fact, the blood pressure fell nearly twenty points.

The analogy of the alimentary tube, whose fundamental motive law is peristalsis, can be invoked in support of the theory of vascular peristalsis. Spasticity of the colon and spasticity of the arterioles both interfere with regular tubal functions.

The comparatively small difference in heart action in the erect and prone positions argues against cardiac monopoly of circulatory motive power.

The fact that after death the large arteries have been found empty of blood suggests that after the heart stops beating the more elementary peristaltic activity of the smaller arteries continues for awhile, shoving the blood into the veins.

It seems reasonable to believe that the heart represents a concentration and special development of the motor functions of the circulatory apparatus, and not a complete absorption of those functions.

If we accept, provisionally at least, the theory of vascular peristalsis as a motive factor in the circulation, it need not produce discord or conflict in our treatment of circulatory failure. The activities of the heart remain the most important physiological element to be considered in this treatment; and treatment directed toward relief of cardiac motive failure, it is reasonable to believe, is also effective in regard to vascular motive failure. A subject for special consideration might be found in the possibility of failure of one of these two motive factors occurring without notable failure of the other. In such cases we would expect, and should allow for, compensatory activity on the part of the less disturbed factor.

1218 Pacific Street.

### Three Years' Experience with Vaccination against the Common Cold

R. Vance Ward publishes the results of three years' experience with vaccination against the common cold. After preliminary trials a large group of Montreal factory employees were given inoculations over a period of two years with stock vaccines designed to prevent the occurrence of acute respiratory disorders. Care was taken to select those people who had had a bad record of trouble from those disorders. Over a period of four months careful records were kept of the time these people lost from pneumonia, bronchitis, influenza, colds and tonsillitis, and their record was compared with that of a control group consisting of all the other employees in the factory. In 1929-30 considerable improvement was observed in the record of the vaccinated group; in 1930-31, although there were fewer absences among the vaccinated group, the number of days lost per 100 in this group was slightly greater than in the control group. A few irritating but no serious reactions or results occurred. Most of those inoculated seemed to feel that they had been benefited. It is perfectly clear that the stock vaccines used cannot in any sense be considered a sure and specific preventive of acute respiratory disorders in the dosage we used. That they do benefit a large percentage of people is apparent from the fact that the absenteeism of a group of people who are habitual sufferers from respiratory troubles can be reduced to a point below that of a control group. There are apparently a good many individuals on whom the vaccine has no effect whatever.—(*Canadian Medical Association Journal*, October 1931, xxv, 408.)

\* Edward E. Cornwall, Arterial Peristalsis and Essential Hypertension, *Medical Times and Long Island Medical Journal*, February, 1931.

## A Résumé of Our Cases of Acute Purulent Otitis Media

*For the First Six Months of 1931\**

**HENRY BUEL SMITH, B.S., M.D., F.A.C.S.**

and

EUGENE H. COON, B.S., M.D.

Hempstead, N. Y.

WE have often wondered just what percentage of our cases of acute purulent otitis media develop mastoiditis and require surgery, and also what is the average period of aural discharge in the cases that go on to uneventful recovery. Fully realizing that these percentages may vary from year to year according to the severity of the seasonal infections, we, nevertheless, thought it would be of interest to go over our cases for a definite period and endeavor to answer these and certain other questions. Therefore, we have taken our acute cases for the first half of this year and analyzed them from the group standpoint. We had no unusual epidemics during this time, and as near as we can determine from our general impressions, the infections during the period were of average severity.

We have endeavored to include only the cases of acute purulent otitis media which we saw practically from the beginning of their infection. We have not included the cases which were seen by other physicians and referred to use because of the threatened onset of some complication. In other words, cases representing the more serious middle-ear involvements selected from other groups of cases were not included. No cases of chronic purulent otitis media are included. Thus, of the total number of cases of otitis media which we included in the group, 352 had myringotomies performed, while spontaneous rupture giving sufficient drainage had taken place in 58 of the cases.

The majority of the cases occurred in our private practice, and were followed through and discharged by us. In a few cases, of course, the condition was not entirely well upon our last examination, and we were forced to take the report of the parent that "The ear had stopped discharging and was all right," instead of our own final examination. Also, a few of the cases, after preliminary myringotomies, were followed by the family physician who made the final examination and discharged the case. A small percentage of error must, of course, be allowed for in this type of follow-up reports. Thirty-three of the 410 cases were lost track of during the course of the disease and no final report was obtainable.

In table I the cases are classified according to the etiology, with the number of patients and the number of ears involved.

<i>Etiology</i>	<i>Number Patients</i>	<i>Number Ears Involved</i>
Rhinitis . . . . .	196	280
Influenza . . . . .	39	62
Measles . . . . .	15	24
Tonsillitis . . . . .	9	13
Pneumonia . . . . .	8	14
Scarlet Fever . . . . .	7	8
Sinusitis . . . . .	2	4

Patients with previous ear infections: Of the total group, 75 cases gave a history of previous ear infections. This tendency to repeated ear infections is shown more definitely in the cases in the age group 6 to 10 years, inclusive, i.e., children old enough to have had previous trouble, yet young enough to obtain a fairly accurate history from parents. Of the 59 cases in this age group, 26 had had previous infections.

In the total group, 64 patients had had tonsils and adenoids removed. Of the 59 cases in the age group 6 to 10 years, 29 had had tonsils and adenoids removed.

Much as we favor the removal of tonsils and adenoids in children with repeated ear infections, it frequently does not give the relief which we hope for.

### Bacteriology and days of aural discharge:

In cases of bilateral ear infection, we find that there is rarely any difference in the bacterial growth of the two ears. Thus, in 77 cases of bilateral otitis media, where cultures of both ears were made, bacterial growth was identical. So for purposes of classification according to bacterial growth we have considered the second ear as having the same infection as the first, in another group of 24 cases in which we either obtained no growth on the second culture or in which due to pressure of time or shortage of culture tubes only one culture was taken. It is interesting to note that the original infection of the ear almost always remains constant throughout the course of the acute disease and agrees with the results of cultures from the mastoid in cases which later require surgery. A second infection may, however, develop very rapidly after a first infection. Thus, in one case of acute purulent otitis media with one ear involved,

\* Read at the November, 1931, Staff Meeting of the Nassau Hospital.

culture showed Pneumococcus No. 1 infection. Four days later discharge had stopped and resolution was apparently taking place. Two days following there was an involvement of the second ear, requiring myringotomy and a discharge again from the first ear. Bilateral cultures at this time showed a hemolytic streptococcus in both ears. In the following table cases which required mastoidectomy are excluded:

Infection	No. Ears Infected	Average Days of Aural Discharge
Hemolytic Strep.	126	24.5
Pneumo. No. IV	62	12.7
Pneumo. No. III	37	18.
Pneumo. No. 1	24	14.
Strep. viridans	2	10.
B. Influenzae	2	1.
Negative cultures and cases in which no cultures were taken.	89	12.1

Average days' discharge for above cases is 17.2 days. One case, clinically a tuberculous infection, not confirmed by culture, showed aural discharge when last examined, 96 days after onset.

#### Mastoiditis:

There were 33 cases which required mastoidectomy, of which 3 were bilateral, a total of 36 mastoidectomies for the group. These cases had an average of 23 days of aural discharge prior to operation. This figure seems to be surprisingly constant in our experience. In a résumé of 100 consecutive mastoidectomies, which one of us<sup>1</sup> (Dr. Smith) reported in 1929, the average duration of the aural discharge, in the 92 acute cases of the series, was 21 days, while a series of 53 mastoidectomies,<sup>2</sup> performed during the first half of 1930, showed an average aural discharge of 24 days.

#### Classification by ages:

Youngest	5 months
Under 1 year	2
Under 6 years	9
Six—fifteen inclusive	12
Sixteen—thirty-five inc.	9
Over thirty-five	3

Oldest in the group, 46 years.

The following table shows the etiology and growth on culture in cases requiring mastoidectomy:

Etiology	Growth and Culture
Rhinitis	Hemolytic streptococcus
Influenza	4
Pneumonia	2
Scarlet Fever	3
Measles	2
Tonsillitis	1
Trauma (fractured skull)	1
	(Probably Hemolytic Streptococcus, mastoiditis complicating measles)
	Total
	36

Type of infection with percentage of cases developing mastoiditis:

Eliminating the 33 cases in which we had no final report, there were 36 of the total number of 377 cases which developed mastoiditis requiring surgery, or a percentage of 9.5 in the group.

Infection	No. Cases	Mastoid-ectomies	Per-
Hemolytic Strep.	156	30	19.2
Pneumococcus No. III	42	5	11.9
Pneumococcus No. IV	63	1	1.5

Pneumococcus No. I	24	..
Streptococcus viridans	2	..
Influenza Bac.	2	..
Negative cultures	89	..
Tubercle bacillus	1	..
(not confirmed by culture)		
Total	377	36
		9.5

#### Comment:

These percentages are of interest when taken relatively. Of course the correct placing of the 89 cases in which we have no bacterial reports would change the relative percentage to some degree. Inasmuch as the average duration of discharge in these 89 cases, however, was only 12.1 days, a complete bacterial report on these cases would probably place a majority of them with the more favorable types of ear infection; namely, Pneumococcus groups I and IV, and would only serve to make more marked the danger of a severe mastoiditis when dealing with a streptococcal type of infection. The high percentage of cases requiring mastoidectomy in the Pneumococcus No. III infections, compared with the Pneumococcus No. I and IV groups is in accordance with the general feeling regarding the danger when dealing with this group. We are inclined to feel that children handle this infection better than adults. We note that 2 of the 5 cases of Pneumococcus No. III infections were in children, ages 11 months and 1 year respectively, while the other three were adults, ages 24, 30 and 46 respectively.

#### Complications:

In addition to the etiology we find the following either associated with, or following the otitis media:

Pneumonia (lobar and bronchial), 6 cases.

Maxillary sinusitis, 3 cases.

Retropharyngeal abscess, 2 cases.

Meningitis, 3 cases.

Infection of mastoid areas requiring incision of old mastoid scar, 2 cases.

Acute hemorrhagic nephritis, 1 case.

#### Results:

Adhesions between the drum and the promontory were noted in certain cases. Due to the difficulty of determining whether these were the result of this or some other attack of otitis media, we did not think it of interest to list them. Permanent perforations of the drum were noted in but two cases. These ears were dry, however, when discharged. In the total group there were three deaths, all from meningitis, a percentage of .08. The percentage of meningitis in cases of acute otitis media is very difficult to determine. In dealing with such a small group as here presented, a case, more or less, of meningitis makes a very great change in the percentage. Large groups are, of course, very difficult to obtain, since most of our cases of meningitis are seen in hospital or consultation practice, and represent the unfortunate results from a very large and indefinite number of primary middle-ear infections. Two of the three cases of meningitis developed after mastoidectomy, a high percentage for the number of cases. In 100 consecutive mastoidectomies reported in 1929, and another group of 53 consecutive operations reported in 1930, we were fortunate in having no meningitis after operations. We did have, however, three cases of lateral sinus thrombosis, in those series, with none in this group.

#### Conclusion:

I. Most cases of acute purulent otitis media show an uneventful recovery in about 17 days.

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# General Principles of Surgery in Cancer of the Large Bowel\*

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THE subject to be considered this evening is limited to the consideration of certain general principles involved in the surgery of the large intestine for cancer, without any direct reference to surgical technic or operations as such. In other words, we are going to consider certain surgical principles which will indicate to us not *how* certain operations are done in cases of cancer of the large intestine, but *why* such operations are done and *when* they are done or when they should *not* be done.

The question will naturally suggest itself: Why should a paper dealing with surgical principles be presented before a society whose membership is made up largely of general practitioners? Quite true. But the modern practitioner is a highly-trained man who is wide awake and well posted on most important medical topics. However, when it comes to cancer of the large bowel he is but poorly informed or, rather, badly misinformed; not as to the diagnosis or etiology, or other medical aspects of it, but as to the nature of the different operations and the reasons or indications for them. This subject has been sadly neglected by the medical schools, and surgeons, as a rule, have not made any attempt to popularize it. The result has been that many physicians witnessing such operations are confused and bewildered at these complex and bizarre procedures, and not infrequently do they find themselves in the embarrassing position of not being able to explain to the patient or the family as to just what has been done at a particular operation. This is especially the case when told that two or three operations are required before the patient may leave the hospital.

It is with that in mind and from that point of view that the preparation of this paper has been undertaken. It is felt that the time and conditions are ripe for it. The hope is entertained that, if these principles are properly presented, so as to render them clear and understandable, that they will serve as a guide or key to all the maneuvers in the operations on the large bowel and will enable the observer to follow every step in these operations no matter how complicated and see the logical reasons for them no matter how obscure or mysterious they may at first appear.

To simplify this subject for those who have not had recent opportunity to study it, and it is to them that this is addressed and whom we wish to reach, it was deemed expedient to begin the discussion by a comparison between the large and the small intestine, and to point out the contrasting elements between them, for these differences are essentially the reason for the development and need of the special principles which are applicable to surgery of the large intestine.

Operations on the small intestine, while serious enough so far as operative results are concerned, are, from a technical point of view, comparatively simple and easy. Generally speaking, an operation on the small intestine is limited and directed to that portion of the intestine which

is the actual seat of disease. The diseased part removed, and the ends united, the operation is practically completed. With ordinary technic and skill a satisfactory outcome may be confidently looked for.

Different, however, are conditions when operating on the large intestine, and these differences give rise to many complex and serious problems which require special consideration in their solution. In the large bowel we meet with certain natural, inherent and almost insuperable difficulties which make all operations on this part extremely dangerous, even the simplest of them. The prognosis is always grave and the outcome always doubtful. These operations entail special care, special precautions and safeguards. They are of necessity long, tedious and extensive, especially when efforts are directed toward complete and thorough extirpation of the cancer. They tax the patient's strength and vitality. On the other hand, they require skill and judgment and an unlimited amount of patience and perseverance on the part of the surgeon.

What are these differences between the large and the small intestine? These may be grouped under four heads:

- I. The anatomical variations.
- II. The difference in the contents.
- III. The difference in pathology.
- IV. The difference in the associated conditions.

I. *The Anatomical Considerations.* The wall of the intestinal tube, whether small or large, is made up of four coats. From within outward, we have the mucosa, the submucosa, the muscularis, and the serosa or peritoneum. The two inner coats—the mucosa and the submucosa—are practically alike in both and do not concern us at all. The two outer coats, however—the serosa and the muscularis—are so decidedly different in the large bowel, and these differences are so important from the surgical point of view, that considerable time and space will be devoted to them.

I. *The Serosa or the Peritoneal Coat.* It is a well-known principle in abdominal surgery that the serous or peritoneal covering plays a very important rôle in the healing of all operative wounds, and this is of maximum importance in the healing of intestinal surgical wounds. Operative wounds of the small intestine, under favorable conditions, heal kindly and well. However, it takes several days before the healing process is completed. The suture line has, naturally, a number of stitch holes in it, and leakage through these would be a grave menace to union were it not for the protective influence of the peritoneal membrane. Following the operative trauma, the endothelial cells lining the peritoneal surface react promptly by throwing out a lymph exudate which immediately agglutinates the surface of the wound. This simultaneously seals the stitch holes and prevents the escape of intestinal contents. In the meantime tissue reaction, or healing, is going on within the wound, and eventually firm union is the result.

The small intestine throughout its entire extent, with the exception of the duodenum, is completely covered by

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the serosa or peritoneum. Therefore, under favorable conditions, primary union of the operative wound in the small intestine is the rule.

When, on the other hand, we examine the large bowel, excepting the transverse and sigmoid colon, all the other segments are not completely surrounded by peritoneum: there is an area on the posterior surface which lacks this covering. It follows, therefore, that in operative wounds of the large bowel, such as resections with end-to-end anastomoses, the uncovered part is deprived of the protective element of the serous membrane; the suture line of that portion, then, remains unsealed and bowel contents, even if it is only gas, may escape through the stitch holes and lead to very serious consequences.

Another point: histologically, the peritoneal coat is made up of very fine, delicate endothelial cells which are placed upon a basement membrane. This membrane, even though it is very thin, has considerable toughness and resistance. Now, if you bear in mind that distention is always likely to be present after abdominal operations and that it is particularly apt to develop after an operation on the intestine itself, it must be evident that the part of the operative wound of the large bowel which is not covered by peritoneum constitutes a weak point, and, when subjected to considerable tension, may rupture with the escape of intestinal contents. In fact, such calamities actually occur; occasionally, a patient seems to be doing well for a number of days after an operation and then, suddenly, goes into collapse and expires within a short time. This usually is ascribed to a cardiac attack, and while the heart does fail, the underlying condition is leakage with an overwhelming infection.

2. *The Muscularis.* In the small intestine the muscularis is made up of two layers, an inner circular and an outer longitudinal layer. This double layer of muscle gives the intestinal wall considerable thickness, strength and resistance and, incidentally, a well-balanced peristaltic function. The muscularis of the large bowel has a similar inner circular layer, but the outer longitudinal layer is incomplete and poorly developed: it is represented by three thin, narrow, ribbon-like bands known as taenia. The wall of the large bowel is, therefore, decidedly thinner, especially when we compare its caliber with that of the small bowel. This thinness becomes strikingly and impressively evident in cases of marked obstruction. At operation, there is enormous distention. When this is the case, the wall of the bowel is like tissue paper; in fact, one fears to touch it because the slightest pressure may cause a rupture of the outer coats and even a perforation. That is the reason why perforations occur so frequently in the large bowel, whereas perforations in the small bowel hardly ever occur. The thinness of the wall in the large bowel is, therefore, a source of danger before operation, a handicap during operation, and a cause of anxiety after operation.

3. *The Vascular Supply.* The small intestine has an unusually rich blood-supply. The superior mesenteric artery, which is a very large vessel, breaks up into numerous branches which anastomose and reanastomose with each other and form what are known as arcades. When injury or thrombosis or embolism of some medium-sized vessel takes place, under any conditions, the collateral circulation of neighboring branches frequently comes to the rescue, blood is carried to the affected part and the circulation may be re-established without gangrene resulting. Operations on the small bowel, therefore, are fairly safe, so far as the blood-supply is concerned, provided proper technic and care are used. In the large bowel the vascularity is not so abundant and the collateral circulation is not dependable.

Therefore, if the slightest interference with the blood current takes place, as is so likely to happen in resection operations, necrosis and marginal gangrene of the operative wound may result, which, of course, will lead to the usual sad ending.

4. *The Mesentery.* The loops of the small intestine hang loosely in the abdominal cavity, their attachment to the posterior abdominal wall being an indirect one; that is, through the great mesentery. The large bowel, however, with the exception of the transverse and sigmoid colon, has no mesentery, but is attached directly to the posterior abdominal wall by that part of its surface which has no peritoneal covering. The large bowel, therefore, in most of its parts is a fixed organ, and this fixity offers considerable hindrance in surgical manipulations, as will shortly develop.

5. *Location of the Large Bowel.* The small intestine occupies and fills a large part of the abdominal cavity. Upon opening the abdomen through any incision we immediately come face to face with loops of small intestine. Their mobility, due to the long mesentery, renders every loop accessible so that we can pick up any loop and bring it to the surface without any difficulty. The location of the large bowel is entirely different. It is placed on the periphery of the abdominal cavity in the form of a horse-shoe, or, rather, that of a large question mark. To reach any particular segment special incisions have to be planned in advance. Not infrequently when the diagnosis is uncertain or the seat of a lesion cannot be definitely established before operation, an exploratory incision is resorted to. If the incision has not been properly placed, owing to the immobility of that part of the large bowel involved there is considerable difficulty in reaching that particular segment in which the lesion is located and an additional incision has to be made. This, to say the least, is unfortunate.

6. *The Relationship to Other Organs.* All the loops of the small intestine, excluding the duodenum, are free and unattached to any other organ in the abdominal cavity. Any operative procedure, therefore, no matter how extensive, may be carried out on the small intestine without touching any other organ. The large bowel is entirely different in this respect: it comes in contact in its successive segments with practically every organ in the abdominal cavity, such as the kidneys and ureters, the liver and gall-bladder, the stomach and duodenum, the pancreas and spleen. In the female the sigmoid is in close relation to the pelvic organs. This entails a great deal of care and precision in the operative technic in order to avoid any possible injury to adjacent organs. This makes these operations so difficult that one must be on one's guard all the time. Frequently there are extensive inflammatory adhesions to some of these organs. Occasionally an actual cancerous invasion of a neighboring organ occurs and presents a most serious problem.

## II. THE CONSIDERATION OF THE BOWEL CONTENTS.

First, the bacteriology of the contents. Second, the consistency of the contents.

*The Bacteriology of the Contents.* In the small intestine, under ordinary conditions, the contents are practically free from bacteria. Resection of the small intestine is done with immediate anastomosis of the ends with little fear of infection, the abdomen is usually closed without drainage, and primary union is the rule.

The contents of the large intestine are always loaded with bacteria and some of them are of an extremely virulent type. In operations on the large bowel, therefore, we are always dealing with septic contents, and this constitutes one of the most dangerous elements in this branch of surgery.

*The Consistency of the Contents.* The contents of the small intestine are always in a fluid state. By stripping the bowel in either direction the fluid contents may be easily displaced and they do not appear in the operative field at all. As the fluid passes into the cecum, absorption of water begins to take place and the fluid assumes a thicker consistency. Upon reaching the transverse colon and splenic flexure most of the water has been absorbed and we have the formation of the characteristic solid feces. The thickened consistency of the feces does not permit its displacement by stripping the bowel. Besides, it is a very dangerous thing to do because of the thinness of the bowel wall, as has been pointed out before. In operative wounds of the large bowel, therefore, the thickened consistency of the feces has a decidedly deleterious effect upon the integrity of the suture line, first, because the pressure of the solid mass may force particles of feces through the stitch holes and interfere with union by their physical presence. Secondly, the pressure may produce a local ischemia in the tissues adjacent to the suture line which may lead to necrosis, marginal gangrene and finally perforation. Of course, infection will inevitably be a constant accompaniment of this.

**III. THE PATHOLOGICAL CONSIDERATION.** It may seem odd, but cancer of the large bowel is different from cancer of the small bowel, not that the cells are different or their arrangement, but the course and evolution of the tumor are so strikingly and markedly different.

Cancer of the small bowel is a comparatively rare disease. It usually occurs in younger people: it grows very rapidly probably on account of the early and more active age. Since narrowing of the intestinal tube is a primary effect of the growth, interference with the fecal current is an early manifestation. Therefore, the symptoms are likely to occur early and the diagnosis is made early. In spite of that, however, surgery does not hold out much hope in cancer of the small bowel. Even after the most radical operations the prognosis is always bad. Cancer of the large bowel, on the other hand, is a fairly common disease: it occurs mostly in advanced life, the growth is of slow development, and the symptoms may be slight or indefinite, or they may be entirely absent until complete obstruction suddenly develops.

The surgical results in cancer of the large bowel, if radical surgery can be done, are quite encouraging. In those cases in which radical operation cannot be done, life is always prolonged and made comfortable by a palliative operation.

**IV. THE OTHER ASSOCIATED CONDITIONS.** Cancer of the large bowel, as has been previously observed, is a disease of advanced life. Of course, it may occur in younger people, but, as a rule, we are dealing with patients who are in the fifth and sixth decades of life, and often very old. Such a group will, no doubt, show evidence of degenerative changes in other organs, especially of the cardio-vascular, respiratory and renal systems. As a group they are, therefore, below par, and many of them are poor operative risks.

Since interference with the fecal current is always present, even in the early and mild cases, a certain amount of toxic absorption will cause some deterioration in the general health of the patient. In many cases there will also be present symptoms of indigestion with nausea and vomiting, loss of weight and asthenia. In cases with ulcerations and hemorrhage anemia may be quite marked; in fact, in a certain number of cases the anemia is the first thing that attracts attention, and only diligent study and investigation lead to the diagnosis.

Cases with complete obstruction certainly are bad risks, but these will be considered as a separate group later on.

It must be evident, therefore, that the associated conditions in cases of cancer of the large bowel present an unfavorable element in a large proportion of cases, so far as radical surgery is concerned.

To summarize briefly, we have certain anatomical variations in the large bowel, and thick, septic contents which make surgery of this part an extremely hazardous undertaking. The other elements—the age incidence, the difficulties of diagnosis, and the element of obstruction, are so intimately associated with cancer of the large bowel as to be practically a part of it.

Obviously, we cannot change the anatomy, nor is there much chance of altering the character of the contents. The age incidence we would not change even if we could. Then, true, we have better means today to make a diagnosis earlier and as the diagnosis is perfected perhaps the element of obstruction will be eliminated entirely, but it is a long way to the millennium. What, then, is to be done?

To overcome these difficulties, or rather, to counteract them was the task of the surgeons of the last generation. Due credit must be given them for the courage and ingenuity which enabled them to devise certain means to minimize the dangers in this branch of surgery and eventually to place it on a sound scientific basis. In the course of time and with increasing experience and modifications it became evident that the admirable results obtained were not accidental or empiric, but had definite scientific significance. This led to the establishment of certain general principles in the surgery of the large bowel which are universally recognized and accepted and which it is my privilege to present before you this evening.

The history of the evolution of modern surgery of the large bowel is extremely interesting. Time, however, will permit of only a few references to some of the pioneer work in this field. Until the late 70's of the last century the only known operation on the large bowel was a colostomy for the relief of complete obstruction. Radical extirpation of cancer was unknown. The year 1879 marked the beginning of a new epoch in this branch of surgery.

Gussenhauser, in Germany, while operating on a case of obstruction due to cancer of the sigmoid, instead of doing the routine colostomy, brought the sigmoid with its tumor out of the abdomen, excised the tumor and then sutured the two open ends to the abdominal wall, a most unusual procedure, but the results were startling: the patient recovered, and, strange to relate, she was known to be alive and well eighteen years later. Therefore, a radical cure of cancer of the sigmoid, and that in the days before aseptic surgery!

May we not stop here for a moment in order to analyze the significance of this? An operation was done on a part of the large bowel in the days before aseptic surgery, which resulted in an immediate operative recovery and eventually in the cure of the cancer. Why?

Now, let us suppose that instead of proceeding the way he did he had attempted to excise the tumor *in situ*, that is, as the sigmoid was in the abdomen; and let us further suppose that after the excision of the tumor he had attempted to sew the two open ends together and had then closed the abdomen, what would have happened? Need we have any doubt, with our present knowledge, that the patient would have died within a few days? Why then did the patient recover? First, because the bowel was moved out of the abdominal cav-

ity, or to use modern surgical phraseology, it was mobilized. Second, the excision of the tumor was done outside the abdominal cavity, or as we would term it today, an extra-peritoneal excision was done. Third, the open ends were left outside the abdomen, or were exteriorized. Therefore, we may say that three principles were involved—mobilization, extra-peritoneal manipulation, and exteriorization of the bowel, which made the operation safe and successful, whereas otherwise it would have been dangerous and probably fatal.

Four years later, in 1883 to be exact, Volkmann repeated Gussenhauer's procedure in a similar case of sigmoidal obstruction and obtained the same result; that is, the patient recovered. He then went a step further: a few weeks later he applied a clamp to the partition or spur between the two loops and tightened the clamp daily until the spur was cut through. A communication was thus established between the two loops below the surface of the abdominal wound. In the course of time the feces began to run over from the proximal into the distal loop and eventually the patient had normal movements through the rectum. Finally, as the surface of the wound became clean, he sutured the free ends of the exposed loops together and the continuity of the intestinal canal was re-established.

What did these procedures signify? Two new principles were established—First, the possibility of restoring the continuity of the intestinal canal by extra-peritoneal manipulation; and, second, the advantages of doing these operations at intervals, or what are now known as multiple or stage operations.

The primary operation was directed towards the relief of the obstruction and was, therefore, an emergency of life-saving operation. The subsequent operations were operations of convenience and were done only when the patient's general condition had improved to the extent that they could be done without endangering his existence. Again, all these operations were done outside the abdomen, or extra-peritoneally, which obviated the possibility of soiling and infecting the peritoneum by the septic contents.

In 1891, twelve years after Gussenhauer's maneuver, Bloch, of Copenhagen, added another important procedure. He mobilized the obstructed sigmoid in a case of cancer, closed the peritoneum around it and left the sigmoid on the surface of the abdomen untouched. In other words, he exteriorized the entire sigmoid. Then a few days later, as he felt that by that time the peritoneum was shut off by adhesions, he excised the tumor and allowed the open ends to drain for some time. Later on he completed the several stages of the operation by Volkmann's method with excellent results. He thus added another stage to the operation and made it still safer so far as the prevention of soiling of the peritoneum was concerned.

Von Mikulicz applied Bloch's method to tumors in other parts of the large bowel. Later on he practiced this method deliberately in cases that were not obstructed at all with equally good results. In 1902 he presented a very extensive report of his experience, before the Congress of German Surgeons, and since that time this has been known as the Mikulicz operation.

In this country the Mayos took up the Mikulicz operation and practiced it very extensively. Some years later, William J. Mayo, in commenting upon the results of the Mikulicz operation, expressed himself as follows:

"The Mikulicz operation has done more to extend the operability and reduce the mortality in cancer of the large bowel than any other factor."

In 1912, Paul, of Liverpool, read a paper on this sub-

ject in which he stated that he had been doing this operation for twenty-two years; that is, long before he had known anything of the work of other surgeons. He, however, after removing the tumor, tied in glass tubes in the open ends of the exteriorized loops, which drained the feces into a bottle and this prevented soiling of the wound.

In tracing the development of these procedures we must be impressed by the fact that they have given us the clue to the basic principles upon which the modern surgery of the large bowel is founded. Nevertheless, there has been a tendency of late years towards more aggressive procedures, and in certain types of cases the multiple stages have been eliminated. At the Mayo Clinic, where the Mikulicz operation had been in vogue for many years, the younger surgeons have lost some of their enthusiasm for this operation since they found that it is responsible for an 8 per cent mortality of its own and a local recurrence of 12 per cent in their own cases. With our present surgical attainments the one-stage operation may be practiced in a certain number of cases under favorable conditions with even better results, both immediate and ultimate.

The well-informed surgeon does not limit himself to any one particular procedure. Rather, does he adjust the operation to the indications in the individual case. However, the principles embodied in what is known as the Mikulicz operation must always be borne in mind and never lost sight of. With our present aseptic technique and with a thorough appreciation of the elements of danger and the means of counteracting them, modifications may be undertaken without much additional risk, provided certain precautions are observed. The general condition of the patient should be the determining factor. In younger individuals who are constitutionally sound and when the element of obstruction is not an immediate factor, the complete operation may be done at one sitting without any hesitation, provided proper judgment is used. In a certain number of cases it is necessary to take measures to preserve the integrity of the suture line: by establishing a temporary abdominal anus some distance above the anastomosis, an outlet is provided for the escape of feces and pressure against the suture line is avoided with its dangerous sequelae.

In the presence of acute and complete obstruction radical surgery should never be attempted. Even the Mikulicz procedure is not always safe. This may seem paradoxical in view of the fact that in its early history it was done on cases of obstruction. Experience, however, has shown that when the obstruction has lasted a long time the bowel becomes congested, thickened and infiltrated, and peristaltic motion is interfered with. In other words, there exists a paresis of the bowel, no escape of fecal matter occurs, and the patient succumbs as a result of the toxemia.

The wise surgeon looks upon obstruction in cases of cancer as a disease, and not as a symptom, and directs his efforts towards the relief of the obstruction by the simplest possible method at hand and stops right there. He ignores the underlying condition, the cancer, for the time being. Later on, when the obstruction has been relieved and the patient's condition warrants it, then, and only then, are radical procedures to be attempted.

If the seat of the lesion can be definitely determined preoperatively, then the incision is planned in such a way that the bowel can be opened some distance above the obstruction and a temporary fistula established to drain the feces. The fistula should be placed in such a

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## Anti-Social Behavior and the McNaughton Rule\*

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**I**N order clearly to evaluate the subject matter to be discussed, it is essential to review the views of the authorities in the various fields of abnormal behavior. Thus our study will include an appraisal of the religious, the environmentalistic, hereditarian, physiological and psychological contributions.

The position of the religious or moralistic school is predicated on the idea that in the heavens above there resides a Jehovah punishing evil and rewarding good. This school maintains that anti-social behavior is due to a lack of religious training. Whether this is so will be left for you to decide, after the following suggestive facts are placed before you. Bonger, in a study of some 210,000 criminals in Amsterdam, found that less than one-tenth of one percent had been deprived of adequate religious training. It is also common knowledge that among those who have had exceedingly fine religious training, there frequently breaks out anti-social conduct of the most gruesome and revolting nature. If those who have had the benefit of clerical doctrine fail to uphold its basic premises through their actions, it would be well to look elsewhere for a more logical basis for behavior.

The environmentalistic school attempts to explain the cause for abnormal conduct in a different fashion. This school interprets waywardness as the result of defective environment, inadequate and indiscriminate education, adverse associations, difficulties in the family group, poverty, etc. Many cases have been traced which suggest that this school is in a good part correct.

Another school is that of the hereditarians. It holds that when man makes his advent upon this earth he is already predestined to social or anti-social behavior in direct proportion to any defect in his nervous system or in the germ plasm; that he is constitutionally patterned towards normal or abnormal conduct. Many of our cases can easily be explained upon hereditary factors, such as syphilis or alcoholism in the ancestry.

The fourth school is the purely organic or medical school based on the theories of descriptive psychology. Man's position in the animal kingdom is due to the fact that he possesses two cerebral hemispheres which are the recipients of all stimuli from the environment, i. e., sound, taste, touch, pressure, heat, cold, pain, etc. These are conveyed to the brain by various nerves. When these stimuli reach the cerebral hemispheres they are in the form of simple sensations. Subsequently, these simple sensations are converted into perceptions, i. e., "ideas". Thus when a new stimulus (sensation) reaches the brain, latent perceptions (ideas) are re-awakened. This process of rousing latent ideas is known technically as "thinking". With several ideas in the field of consciousness there necessarily comes the process of weighing values. Thus we have "judgment". Fi-

nally there is a choice of one idea over another, which is the "decision". When the individual finally acts on the basis of his decision, we have an "action" or "conduct". The adherents of this school further maintain that with the process of thinking there are always present emotional charges which color the ideas. Thus we may have a sudden explosion of a highly charged emotional idea; to-wit, anger. If an individual's ideas are charged with emotion for a long time, we say that he has a sanguine temperament or a suspicious nature, or that his personality is optimistic or morbid. Apparently, man's behavior depends on the amplitude of this emotional charge. Where the brain is diseased or destroyed, the ensuing ideas necessarily are defective, and as a corollary, ability to choose or discriminate between values is vitiated. With defective or deficient powers of discrimination the judgment and decision become impaired, leading to abnormal behavior. Thus, it is easily perceived how a disease of the brain, due to tumor or trauma, syphilis or toxins, i. e., morphine, heroin, alcohol, or an imbalance of the endocrine glands, such as the thyroid or the pituitary, may effect the resolution of ideas tending to pervert the judging and deciding factors. Abnormal conduct inevitably follows.

The last school to be discussed is one which explains anti-social behavior in dynamic psychological terms. These precepts place the emphasis upon various causal principles. The Freudians contend that man strives towards the pleasurable and turns away from pain or the unpleasurable—in other words, pleasure-pain principle. Freud maintains that the great urge is the broad concept of love. In order to understand conduct disorder and to evaluate the causes, a clarification of some elemental principles is necessary. Man evolves and develops in the psycho-sexual field by passing from babyhood to manhood through various levels before his personality is fully formed. The first stage is that of infancy. All his interests are relegated to his own bodily sensations and he obtains pleasure from the stimulation of his mouth and excretory organs, the so-called auto-erotic stage, i. e., anal and oral eroticism. As the personality unfolds and progresses it is attracted to its own sex, the so-called homosexual level. Manhood and womanhood are finally attained when there is a full maturing of the drive towards the opposite sex. So the final and normal heterosexual status is reached. If during the unfurling of the personality undue emphasis happens to be placed on any one of the intermediary stages, his personality tends to become fixed at this level. Where an individual in later life finds his desires frustrated because of moral, social, economic or legal prohibitions, he adjusts by going back (regressing) to one of these tiers in his psycho-sexual development at which he at one time gained great satisfaction. Where an individual who, as a child, experienced great pleasure in his nakedness, finds himself in difficulty with his environment, he falls back to the naked period of his psycho-sexual

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span and becomes an exhibitionist. He may regress deeper to the infantile or auto-erotic period, i. e., anal and oral, and express himself by a pederastic act or, if he derived pleasure in inflicting pain while maturing psycho-sexually, he may become a sadist; or if he enjoyed receiving the pain himself, i. e., spanking, he tends towards masochism. This whole process of falling back to one of the intermediary strata of one's psycho-sexual development is technically designated as a regression.

A more social adjustment may be made to one's environment by a process of sublimation. This is accomplished in one of two ways. A man who has a homosexual drive may express it by congregating in saloons with men, using drink as an unconscious pretense to be with the male sex, or he may become a boy scout leader, deriving his satisfaction and adjustment through his contact with boys, serving society in an important and effective social manner.

The Jung school is essentially the same as the Freudian. It differs in that not so much stress is placed upon sexual maladjustments, but explains the regressions upon frustrations to the ego, i. e., power, money, position, etc.

The Adlerian school is based upon the premise that man is constantly striving to dominate, to control, to assert himself, and because of his failure to so encompass his purpose, conduct disorders ensue. At the basis of his frustration is some physical defect. He may solve his problem in one of several ways. Let us assume that he is a stutterer. He may go out and practice speaking and become a Demosthenes, or he may, because of this inadequacy, become shy and reticent, fearing to mingle with people, and as a sequela retires from social contacts. Should this continue, he may imagine people are whispering or laughing at his expense. In this manner the seed of a psychosis is sown.

There is yet another school which is not receiving as much recognition as it formerly did, which I nevertheless feel has contributed much of value. I refer to the mechanistic school, also known as the Behaviorist School, or the School of Pavlov. This school is based upon the idea that man, like all animals, merely responds to some stimulus—that the extent and quality of each response is determined by the intensity and quality of the stimulus. A comparative study of animal behavior in the main sustains this conclusion. Let us begin by examining the amoeba, a one-celled organism. As it is prodded by a probe, it recedes and as the acidity or alkalinity of the medium in which it floats is changed, it shrivels or swells. If a piece of digestible material is placed within its reach part of itself is protruded and the particle is encircled. In a few moments the particle of food is no longer seen for digestive and absorptive processes have played their parts. However, if a piece of indigestible material is encircled and ingested, say a piece of paper, the object is quickly ejected. By no manner of reasoning can we say that this unit of protoplasm chose the conduct observed under the microscope for there is present no brain or nervous system. Continuing our ascent in the scale of animal life, we come to the butterfly which places its eggs upon a shrub not far from the ground. In the fall the larvae hatch. In the spring when the temperature reaches a certain degree, they leave their nests. However, the larvae can be induced to leave their nests, even in the midst of the rigors of winter, provided the temperature is artificially raised to a

sufficient degree. On leaving their nests they climb and crawl directly upwards to the leaves to feed upon them. They inevitably climb skywards for were they to climb earthwards starvation would inevitably ensue because of the sparsity of leaves near the ground. Are the larvae accountable for their never failing course of going upwards? What directs them skywards, which is life-saving, rather than downwards to certain death? It can be satisfactorily shown that intent or choice plays no part—that the course pursued is merely a response to a light stimulus, heliotropism. Place the caterpillars in a closed test tube at right angles to the window with the open end towards the sun. Deposit leaves at the closed end. They will crawl towards the light and there they will remain to starve in spite of the fact that their favorite leaves have been placed just behind them. Thus we see that they are merely puppets of the light and are not responsible for the behavior observed.

In ants, the winged males and females become intensely heliotropic at the time of mating. Copulation occurs in the air in the so-called nuptial flight. At certain times only, when the sky is illuminated at the horizon, do the whole swarm of males and females leave their nests and fly in the direction of the glow. Their wedding flight is a heliotropic phenomenon.

One could go on indefinitely showing by animal experimentation that the responses, intentional on the surface, are merely contingent upon the quality and intensity of the rousing stimulus. Briefly some of the stimuli are: Thermotropism, a response to temperature; heliotropism, a response to light; chemotropism, a response to chemicals; rheotropism, a response to currents of air and water; electrotropism, a response to electrical currents, etc. In all of the responses, the observations unequivocally demonstrate that the animal has no choice, no individual responsibility for any ensuing behavior; that living matter merely responds to an irritating stimulus. In the very simple organisms we speak of the reactions as tropisms, but as we ascend in the animal kingdom we discern a somewhat more complicated response, a reflex.

S. H. Holmes in his "Evolution of Animal Instincts" states that among the insects, the so-called instincts are really reflexes controlled by certain nerve cells not found in the brain. A decapitated fly is able to walk, fly or go through all the complicated movements as cleansing its legs, wings or body. In the crawfish after the brain is removed, the animal still functions under the control of the various ganglia. The eyes move about as usual. The touching of their antennae causes a movement or a withdrawal. The power to swim, walk, seize food is retained, and the ability to distinguish between digestible and indigestible material remains unimpaired. Thus there is seen in the lower animals, even though the brain is removed, complicated responses controlled, however, by separate nerve ganglia. The elements of cognition, intention, responsibility, unquestionably cannot exist in light of the removal of the brain.

As we laboriously continue the climb upon the evolutionary tree we reach the amphioxus, an animal which shows the earliest manifestation of a spinal cord, the great correlating structure of all reflexes. Upward evolutionary life passes to the fishes, i.e., cyclostomi, the selachians (sharks), the genoids (sturgeons), and teleosts, each progressive step re-

vealing a distinctly higher development of the nervous system. The shark shows a high development of the nervous apparatus for smell. Cut the nerve of smell and he will starve with food aplenty about him, while the severance of his nerves of sight leaves the animal in no manner handicapped in his hunt for food. Thus in the fishes there is seen for the first time a primitive cerebral cortex and as the bird family is reached, a more complex development of the cerebral hemispheres is discovered. We are now ready to discuss the highest form of reflex, the instincts, or, if you will, the conditioned reflex.

Anthropological and comparative anatomical studies indicate that the outstanding achievement of man's evolutionary procession is the acquisition of highly intricate structures, the cerebral hemispheres. They consist of millions of cells intimately connected with one another. The importance of these new annexations becomes quite striking when the behavior of a dog is observed in whom these elements have been removed. All his past training, walking, hunting, barking, are lost to him, and he becomes in effect an invalid surviving only if special and careful attention is paid to him. So too, in man, disease in these massive structures leads to invalidism and he must, if he is to live, be excluded from the competing world of his brothers.

In order that animal life shall survive there must exist a finely tuned equilibrium between man and his environment. A failure to so adjust inevitably leads to annihilation. For example, if instead of an animal being repelled by fire, he hurls himself into the conflagration, or if instead of being attracted towards food he is repelled, death and dissolution must quickly ensue. Such are the reflexes which are the elemental units in the mechanism of perpetual equilibrium. There is suggestive evidence tending to show that what at one time was called an instinct is nothing else but a highly organized reflex. These highly organized and newly acquired structures, the cerebral hemispheres, provide the animal with the adjusting mechanism to his environment. A failure of these structures to adapt the animal to his surroundings on receiving the stimuli from his environment results in maladjustment. In fact it is only through the cerebral hemispheres that the production of conditioned reflexes is made possible and upon such conditioning rests the future of reclamation of the anti-social being as well as the reformation of character.

What are these conditioned reflexes? By a series of simple experiments Pavlov showed what they really are. He operated upon a dog exposing the duct of one of the salivary glands, sewing the mouth of this tube to the outside surface of the cheek. He then fed the animal, accompanying the meal with the beating of a metronome. Thereupon, drops of saliva flowed from the mouth of the artificial opening. After repeating this for several days, at stated intervals, he then permitted the metronome to beat without presenting food to the animal. Saliva flowed in spite of the absence of food. Later the cerebral hemispheres were removed. Now the metronome excited no flow of saliva. The animal would take no nourishment unless the food was actually placed into his mouth. Thus the importance of the cerebrum becomes evident. In a simple fashion, the experiment demonstrates that in a healthy animal food ingested, or the sight of it, will cause a flow of saliva; that the subsequent beating of a metronome without food also raises a similar response; that with the removal of the hemispheres the former reactions can no longer

be produced. Thus a new reflex results and is designated as a conditioned reflex, or an acquired reflex. It is also important to note that with decerebration there can no longer be an acquisition of these conditioned reflexes.

What is the significance of this observation? As life goes on we are constantly exposed to numerous and various stimuli, visual, auditory, olfactory, gustatory, touch, pain and temperature. These rousing sensations pass through nerves to the central nervous system so as to reach the cerebrum. The cerebrum on receiving these impulses brings the animal in relation to its surroundings by transmitting these charges to nerves that cause movements. Thus the animal goes towards or away from an objective. This whole new reaction is a reflex, a newly acquired one, a conditioned reflex.

Now that we have reviewed the biological reactions of lower animal life we are ready to direct our attention to the behavior and responses in men.

Objectively, an examination of the structural make-up of man reveals that fundamentally he differs in no manner from the simple organism, the amoeba. The only substantial difference is that instead of one cell, man is composed of millions intimately connected with one another; that instead of one cell exercising powers of digestion, reproduction, respiration, excretion, locomotion, reception of stimuli, as in the amoeba, he has evolved to a highly complex structure whereby specialized organs take up specialized functions, such as the digestive tract for the intake of food and the expulsion of indigestible matter, the genital organs for reproductive purposes, lungs for respiration, and the brain and nerves for the reception of stimuli from the environment and the transformation of these into directed activity.

When stimuli reach the brain through the nerves they rouse sensations which subsequently are converted into a perception. For example, when one gazes upon an apple, impulses are forwarded to the brain as to its shape, size, contour, weight, smoothness, taste, each of which is an individual sensation. When all of these sensations are elaborated into a unit, a perception results in the form of an image called an apple. Thus every perception is merely the combination of several individual sensations. When the sensations have finally been elaborated into an organized perception, the animal then acts by another set of nerves, the motor nerves. Thereupon the hand is moved and the apple is grasped. In substance, a reflex.

It is of the greatest importance to appreciate that every perception is charged with an element of emotion, i.e., like or dislike. This latter emotion is technically designated as an affect. The affect usually remains unnoticed, but is never altogether absent. For example, most people if asked quickly to state whether they prefer a circle to a square can quickly do so. In effect, the mere sight of such figures is associated with an affect, like or dislike. This affect, this emotion, determines our actions and is the decisive feature in our behavior. We strive to procure and retain the pleasurable but recoil from the unpleasurable and the unpleasant. If we take upon ourselves displeasure, it is only to avert a greater one or to obtain some pleasure which we value higher than the assumed displeasure (The pleasure-pain principle of Freud mentioned before). If a definite affect persists and dominates the personality for some time, we speak of it as a mood. Thus man as he wends his way through life is constantly experiencing new desires, new dreams, new hopes, all of which are charged,

colored, by this affect. Those that he desires and can acquire he takes, while those that are denied him either because of the social, ethical, moral or legal order of things are suppressed and inhibited. One wishes to be virtuous, yet at the same time rid oneself of the sex tension. Where one impulse exerts a contrary effect upon another impulse we have an inhibition. However, if one of these emotionally charged impulses is not much stronger than its opponent we have what is known as a "reflection or cogitation" (conflict of Freud). On the other hand, if an impulse thus charged with emotion is of much greater dominance than the other, the latter is repressed (repression of Freud). The final choice is the "decision—the act of volition, the intent", if you will. Thus, in a struggle of impulses, as for example in the struggle to be good or bad, a conflict of emotionally charged impulses results. In short, the personality, ego, or character is nothing more than the past strivings suppressed and present strivings expressed all colored and charged with emotion.

We are now ready to weave into one logical sequential picture all that has preceded. Man is merely a union of millions of individual cells, each cell similar to the amoeba, except that man's cells are more specialized and correlated. As each amoeba responds to a tropism so does each higher organism react to the stimulus by a reflex or a conditioned reflex. Whatever the stimulus may be, the organism will react directly in relation to the quality and intensity of the stimulus. If there is a destruction or disease of the brain, conditioning or learning is impaired as is suggested by the organ school. All the past experiences, the result of bizarre stimuli, go to make up the character or ego of man. When man acts he does so through his personality; his character, which has been indelibly influenced by all of his past experienced stimuli. Accordingly, his intent, his responsibility, has already been thrown into a pattern over which he has no control, no supervision.

Shall we say that this view is fatalistic and hopeless? Does it mean, since man is the result of his conditioning, that he is lost and nothing we can do is of avail? No, on the contrary this concept is highly optimistic, for in effect, it imports that with proper biological supervision, proper education, treatment, favorable surroundings, we can save many of the oncoming generations from anti-social tendencies and recondition scores already unfavorably tainted. The past concept of punishment, instead of reconditioning for the better, superimposes stimuli of hate, sorrow, revenge, hopelessness, inevitably leading to moral deterioration on the part of the individual as well as failure on the part of society.

It is not the purpose of this paper to evaluate which of the schools is the correct one, for such a discussion should be relegated to psychiatrists and psychoanalysts. It is, however, of importance to observe that all scientific schools arrive at one common conclusion, that man's conduct is shaped by factors not within his control. The onus is placed by some upon his environment, out of his control, by some on his heredity, out of his control, by others on medical conditions, tumors, syphilis of the brain, and various other conditions out of his control. The psychological school bases responsibility on past experiences dating from the date of birth to the appearance at the bar of justice, again explaining the anti-social conduct by experience not within control of the individual. Thus if the scientific schools are cor-

rect, even in part, the present attitude of society to the criminal must be modified.

By tracing the development of the criminal law we can quickly discern why and where science and the law fail to meet in dealing with the criminal and evaluating his responsibility. From the medico-legal point of view, the question of insanity has two elements, a medical aspect, which is purely scientific, and a legal approach, which is sociological. If there is a truth in science, it ought to be true in law, and there ought to be no truth in one that is not accepted by and applied to the other.

In order to understand the McNaughton Rule, it is essential that we begin from a point early in the development of the criminal law, for lawyers and jurists frequently discuss the McNaughton Rule as if derived from the common law. In truth, the test was never known during the common law period, but is of rather recent vintage, since 1843. Our study, therefore, will begin with the Middle Ages, from the tenth to the sixteenth centuries, the period of sorcery and witchcraft, the period of persecution and superstition, the period which harked back to Leviticus and justified witch baiting.

We will first begin with Brackton, who lived in 1265, and was then the Chief Justice of the highest court in England, the Aula Regis. He was a Roman ecclesiastic who had nothing but contempt for the common law. Accordingly, he was guided by the Justinian Code. With the importation of the Code into England we find the first instance where an attempt was made to evolve a test for the evaluation of criminal responsibility. The Justinian Code reads as follows:—"An insane person is one who does not know what he is doing, and is lacking in mind and reason, and is not far removed from the brute". Even in our contemporary life in *State vs. Duestrow*, 137 Mo. 69, this concept was cited with favor as a test of the defendant's sanity and responsibility. Let us analyze the test as we read it: "An insane person is one who does not know what he is doing". One must observe, however, that an insane person often does know what he is doing. He knows well the subject of his attention and that he is going to kill. All this he knows unless he is a dement or a raving maniac. The next portion of the test is: "and is lacking in mind and reason". He is not lacking in reason for he has a mind and can reason. However, his reasoning is grotesque and perverted, his mad ideas and defective insight lead him to erroneous and illogical conclusions. The third portion of the test is: "and is not far removed from a brute". This hardly needs to be commented upon, for there is no similarity between the mind of an insane person and a brute. A brute has no mind. Man has! Everyday observations of the insane clearly indicate that there is no analogy between a brute and an insane person.

From Brackton we come to Coke. It is both of interest and value to study him, for he was the first who made an attempt to reduce to some order the legal concept of insanity. Principles were enunciated and conclusions drawn that require appraisal. This jurist stated that an insane person can commit high treason if he kills or offers to kill a king. Continuing his classification of the various forms of insanity offered as defenses, he made the following categories:

1. Idiots, which come from birth.
2. Loss of memory and understanding due to injury, sickness or grief.
3. Lunatics who have intervals of understanding—he is non compos mentis when he has no under-

standing—when by his own vicious acts he deprives himself of memory and understanding, like a drunkard.

This classification is indeed a good one considering the century in which it was made. However, when applied to the criminal it leads to a somewhat ludicrous conclusion. The inference inevitably follows that an insane man should exercise extreme caution and forethought lest he choose the head of the state for the subject of his attention. Were he so unfortunate as to choose the king, a defense of insanity would not be allowed—as though an insane person is so discriminating!

It was Hale who between 1671-76 left an indelible impression upon our law. He continued Coke's classification, adding elements that to this very day have left us in a state of confusion. Hale ascribed insanity to the moon. He stated that one who committed a crime during the full moon was insane, and non compos mentis, while he who committed a crime in the interval between the two full moons was sane and therefore responsible. It was the same superstitious Hale who sentenced two women to death for witchcraft. In spite of his inadequacy our present courts nevertheless go back to him as an authority on insanity. He proposed the following test for insanity: "Such a person as is laboring under melancholy, distemper, yet hath ordinarily as great understanding as an ordinary child of fourteen years is a person who may be guilty of treason or felony".

The attempt to compare an insane person with a fourteen-year-old child leaves little to be said for there is no comparison possible between insanity and a fourteen-year-old child. He then launched into a labored distinction between partial insanity (monomania) and total insanity, a creation of his own lay and uninformed mind. Hale defined partial insanity by saying that it was that form of insanity in which there is competent use of reason in respect to some subjects. This rule later reflects itself in the McNaughton case. The futility of this rule is that it is of little avail in cases of crime perpetrated by most of the insane. There is no such thing as partial insanity, nor is there a total insanity, except in dement and raving maniacs. There is hardly a form of insanity in which there is not preserved some intelligence, emotion or understanding. If Hale's definition is correct no insane person is protected unless he is a dement or a raving maniac. Total insanity is hardly a medico-legal problem for dement or raving maniacs are easily recognized and incarcerated. In effect, the definition of Hale leads to a rather absurd inference. It is equivalent to saying that an attack of typhoid fever, which spared the heart, had attacked its victim partially, or that an attack of pneumonia omitting the bones was a partial form of pneumonia. It would be more correct to say that there are mild or moderate and extreme forms of insanity.

Passing on from Hale, we come to that period in the law known as the judge-made law. Here we deal with insanity as a defense not enunciated by parliament nor by any group of judges sitting together, nor law based on scientific contributions, but rather, law made by judges as they as individuals conceived it. Analogously a judge might say that he thinks a good test for arsenic is a mixture of milk and water (as though any judge can state what a scientific test should be), instead of finding out what the scientific test actually is.

Thus we come to the first of the cases, the so-

called Arnold case. In 1724 Arnold was under the impression that he was bedevilled. He believed that his friend, Onslow, was the cause of his distress, and so, taking the law into his own hands, Arnold shot and killed Onslow. The judge ruled, that "to constitute a defense of insanity, it must be shown that the defendant was mentally deprived of understanding and memory and does not know what he is doing, no more than an infant, a brute, or a wild beast." So we see again a revival of the brute and the wild beast test as well as the infant concept. However, this is the first time that the right and wrong notion manifested itself. One of the elements of this definition has already been discussed in the foregoing paragraphs.

Following the Arnold case in importance is the Ferris case. In 1760 Ferris killed one Johnson. His defense was insanity. During this period of the law, the accused was not allowed counsel, and he had to conduct his own defense in person. Thus he found himself between Scylla and Charybdis. His position was indeed quite awkward, for if he pleaded well, the implication inevitably followed that he was not insane, while if he failed to show that he was insane, the heavy hand of the law would demand its due. He pleaded only too well, for at the end the prosecutor pointed out that he could not possibly be insane in light of his subtle and well planned defense. He was executed. The reasoning of the prosecutor was due to his paucity of experience with the insane. We know now that insane people can think clearly, that they are subtle and can reason well. However, their reasoning is perverted and their morals blunted. Insane persons as a rule, unless absolutely deteriorated, insist upon their sanity and resent the implication of insanity. There was therefore nothing strange in the position taken by Ferris. Bishop quite aptly reminds us that the pages of our jurisprudence are written all over with cases in which those we now understand to have been insane have been executed as criminals.

In 1780 the Hadfield case was tried. Hadfield's counselor was Erskine. Hadfield attempted to kill George III. It appeared on trial that the defendant was not so anxious to kill George III as he was to make the attempt. The accused knew that merely making the attempt spelt out death. He stoutly maintained that he had a visitation from above commanding the act. Erskine was in a dilemma. He knew that to proceed upon the right and wrong theory meant death for his client, it being clear that Hadfield did know the difference between right and wrong in its broad connotation. In substance Erskine reasoned as follows: It is not the appreciation between right and wrong which should determine responsibility, but rather that the test should be based on his delusions. However, he modified this by stating that the act must arise out of the delusion so as to constitute a defense. Carried away by the uniqueness of his argument, he created, by continuing in his refinements, a rather paradoxical and inconsistent situation. He argued that in civil cases responsibility is avoided regardless of whether it arose out of or was independent of a delusion. Strange reasoning! In substance the inference is that a criminal delusion is quite different from a civil delusion. In science it is preposterous, yet in law quite reasonable! The importance of Erskine's contributions is that for the first time the partial and total insanity conceptions of Hale and Coke were

questioned; that the challenge stimulated the attention of England to the fact that there were other factors to be considered than that of the right and wrong test; that the personal view of the lawyer, nimble and quick of wit, became a scientific fact incorporated into the body of the law; that such a law was not evolved by parliament or scientists but rather as a result of a lawyer's argument in an effort to free his client. It is needless to say that this method of creating law is a dangerous one to follow for it facilitates and condones the writing into the legal structure loosely assimilated scientific observation by laymen rather than obtaining sound principles from organized scientific sources.

In 1812 one Bellingham was laboring under a delusion that the government owed him some \$500,000. Apparently his claim received little attention. In a moment of frenzied anger he shot and killed the First Lord of the Treasury, Mr. Percival. The crime was committed on May 11, 1812. On May 15th, exactly four days later, he was tried. His attorney asked for some time to prepare his case. No amount of pleading on the part of counsel could move the judge to grant a postponement. The whole country was in a furor! At the trial Sir James Mansfield, in charging the jury, reverted back to the old test, stating, "one who could distinguish right from wrong, good from evil, is sane." However, this ability to distinguish was not made specific to the crime charged but rather was made applicable to the general broad philosophical conceptions of right and wrong. This view received the attention of the New York Court of Appeals in the case of *People vs. Schmidt*. The Court of Appeals did not follow the right and wrong concept as enunciated by Sir James Mansfield in the Bellingham case but rather limited its effect by stating that the ability of the accused to so distinguish must be measured by the particular crime charged. For, if the accused was controlled by a higher power, his concept of right and wrong as held by mortals must inevitably give way to the commands of a Supreme Being.

We are now ready to evaluate the McNaughton Rule as it stands today. In 1843, one McNaughton believed that he was being pursued and persecuted by enemies. He fled from Scotland to England, from England to France, and back again to England, hiding himself in each country all in a vain hope to elude his imaginary foes. He appealed to the authorities in England but was dismissed as a crank. In despair, he decided to take the law into his own hands, planning to kill the head of the state. Never having met the prime minister he killed his secretary by mistake. At the trial the judge ruled that the test for insanity was his ability to tell the difference between right and wrong as to the act with which he stood charged. This is the first time where the ability to distinguish between right and wrong was limited to the crime charged. On the basis of this charge the jury found him insane. The entire country was aroused. Much discussion ensued. Finally the House of Lords took the matter up. They submitted five questions to the Lord Chief Justice hoping to clarify the law as it appertains to insanity when raised as a defense. Students of the McNaughton Rule have intimated that the questions asked by the members of Parliament and the answers given by the judges in their reply seem to be in the same handwriting, thus raising the implication that those who asked, also answered. The answers given constitute the law today in most of the common law

jurisdictions. Let us evaluate the several answers individually.

It is first stated that if a person knows the nature and quality of his act, insanity is no defense. We, however, know that the insane do know the nature and quality of their acts. They know they are going to kill, and they have their morbid reasons for so doing. They reason accurately and subtly in a manner peculiar to the insane, coming to a perverted conclusion. The next element of the rule is that if they did know the nature and quality of the act, but did not know they were doing wrong, such would be a defense on the ground of insanity. The Schmidt case measures the right and wrong by moral attributes rather than by legal prescriptions. This is indeed an advance over the Mansfield concept. Finally included in the rule is the Erskine delusional test. In effect it concludes that were a delusion true, it would justify the act, and a defense based on such a plea of insanity would be good; while if the delusion were true yet such as would not justify the deed, a defense based on insanity would not be effective. Simply stated—Suppose A and B are together. A is under the false belief that B is going to kill him. A kills B. In such a case the defense of insanity is good, for if it were true, such an overt act would be justified. Suppose they are together, and A accuses B of lying. If true there would be no justification on the part of A to kill B. So in a case where a delusion would not justify the act, insanity as a defense will not be effective. It seems as though we were asking insane people to conduct themselves by rational standards, requiring that when they act they do so as rational persons. In effect, as long as a lunatic acts with reason and propriety he has nothing to fear!

There was and is a great deal of dissatisfaction with the McNaughton Rule. The delusional test fails to cover the problem adequately, for there are many types of insanity that will not come under this test, i.e., mania, obsessions, deliria, emotional disturbances, neuroses, psychoneuroses, etc. In appraising this rule we find that it is based on no authority in the common law for Brackton, Hale and Coke never knew of it; that it was created by no act of Parliament; that it was evolved out of no scientific discussions but merely given to us as a brand new concept derived out of the fertile minds of laymen, judges. The great difficulty, as I see it, is that the Courts are groping for a single test to determine the existence or non-existence of insanity. The courts must realize that there are many different forms of insanity for which, it naturally follows, there can be no single test to include them all. One of the clearest decisions which seems to have struck the heart of the problem was rendered in *State vs. Pike*, 49 N. Y. 309. Here Justice Doe stated, in substance, that the determination of insanity must not be based alone on delusions, nor upon the ability to distinguish between right or wrong, nor upon design or cunning in planning or escaping or avoiding detection, nor upon the ability to recognize acquaintances, or to labor or transact business or manage his affairs. He reasoned that all the symptoms and tests of mental disease are purely matters of fact to be determined by the jury. In short, all the elements of a man's personality, everything of his past and present life, his heredity, his environment, his manner of thinking, his emotional content, his associates, etc., all together should

be taken into consideration when the state of mind of the accused is being appraised.

There are several reasons which explain the misunderstanding frequently observed between the scientist and the legalist. The first is that the scientist is trained to deal with crime subjectively as a problem of the individual personality, while the jurist studies crime objectively. Second: the scientist deals with the welfare of the individual, while the jurist is primarily concerned with the safety of society. Third: the scientist thinks of anti-social behavior as a conduct disorder actuated by emotion and determined by intrinsic factors, while the jurist conceives man as dominated by free will. Fourth: to the scientist the content of thought is unknown and unconscious, while to the legalist everything is well known and conscious. Fifth: the jurist is searching for a single test for insanity, while the scientist knows that there is no such test possible.

#### Discussion

**HON. OSCAR W. EHRIHORN:** I think we are under a great debt of gratitude to Dr. Swetlow for his very interesting and admirable development of the subject, as well as its scientific treatment. With his thesis I assume that no one who has kept in touch with the development of psychiatry and with a knowledge of the cases in the law, is able to take any objection thereto. Dr. Swetlow has alluded to the rule as laid down in the case of the State vs. Pike, 49 New Hampshire, p. 399, and if the view of psychiatrists and the efforts of those who are interested in attempting to bring about a reconciliation of the principles and practice in murder cases from the legal standpoint with that of the medical standpoint, are to mean and accomplish anything it must unquestionably be along those lines. Following the Pike case, to which Dr. Swetlow alluded, was the case of the State vs. Jones, which is probably cited even more than the Pike case, for the reason that there were a number of charges to the jury there which have been adopted by courts in other States of the Union. The State vs. Jones is in 50 N. H. 369, and by reason of its importance was taken out of its turn in the publication of the reports by the State Reporter, and was reported ahead of its time. There are a number of charges there which seem to cover the subject, and since they merely elaborate what Dr. Swetlow in his interesting manner has already given, I think I will read them, because they have been adopted in other States of the Union. These are the charges which are upheld by the Judges of the Appellate Court:

"If the defendant killed his wife in a manner that would be criminal and unlawful, if the defendant were sane, the verdict should be not guilty by reason of insanity, if the killing was the offspring or product of mental disease in the defendant.

"Neither delusion, nor knowledge of right and wrong, nor design or cunning in planning and executing the killing, and escaping or avoiding detection, nor ability to recognize acquaintances, or to labor, or to transact business, or manage affairs, is, as a matter of law, a test of mental disease, but all symptoms and all tests of mental disease are purely matters of fact to be determined by the jury: whether the defendant had a mental disease, and whether the killing of the wife was the product of said disease, are questions of fact for the jury.

"Insanity is mental disease—a disease of the mind. An act produced by mental disease is not a crime.

"If the defendant had a mental disease which irresistibly impelled him to kill his wife—if the killing was the product of mental disease in him—he is not guilty; he is innocent—as innocent as if the act had been produced by involuntary intoxication; or by another person using his hand against his utmost resistance. Insanity is not innocence, unless it produced the killing of his wife.

"If the defendant had an insane impulse to kill his wife, and could have resisted it, he was responsible. Whether every insane impulse is always irresistible, is a question of fact. Whether in this case the defendant had an insane impulse to kill his wife, and whether he could resist it, are questions of fact.

"Whether an act may be produced by partial insanity when no connection can be discovered between the act and the disease, is a question of fact.

"The defendant is to be acquitted on the ground of insanity unless the jury are satisfied beyond a reasonable doubt that the killing was not produced by a mental disease."

We have often heard about Scottish jurisprudence. They are rather sensible over there at times. I do not know what we would do without the Scotch. They have been favoring us with more good stories than I think any other nation, but their good sense has served many useful purposes, and you all know the

famous Scotch verdict of not proven. Here is Lord Chief Justice Clerk speaking to the jury in a Scotch judiciary case:

"The question is one of fact, that matter of fact being whether when he (the defendant) committed this crime the prisoner was of an unsound mind." He continues: "The Counsel for the Crown very properly said that this was entirely for the gentlemen of the Jury. It is not a question of medical science; neither is it one of legal definition, although both may materially assist you. It is a question for your common and practical sense."

In various states, Illinois and Indiana, for example, they have adopted the same reasoning as the New Hampshire case which if time permitted I might bring before you. However, this whole question reminds me that we have been discussing this matter in this Society for many years. The decision in the Pike case was in '69 or '70, and the State vs. Jones was in 1870. That goes back to a time when our distinguished speaker had not looked upon this bright and beautiful life, and even I, though bearing on my head the snows of many winters, had not yet come upon this mundane sphere. The views of these distinguished judges have been discussed time and again since that day, and we have had many distinguished speakers in both law and medicine, members of the highest court of this state, come before us to discuss this subject; and yet at the present time it is one of the liveliest questions of the day, because it has again been brought under the bright light of discussion by a member of the highest court of this State. It only leads me to one conclusion, and that is illustrated by a remark of our deceased friend, (whom many of us knew), Samuel Clemens, who said, "We always hear people talking about the weather,—everybody is talking about it, but nobody is doing anything about it." It seems to me the position for this Society is no longer to talk about it, but to do something about it. If only a start were made by some of the distinguished members of this Society something could be accomplished to bring the law into line with psychiatry.

**DR. ISRAEL L. FEINBERG:** After listening to Dr. Swetlow's paper, and to my good friend, Hon. Oscar Ehrhorn, and after looking back on an experience of 38 years in the practice of medicine, eight years spent in the position of President of the Board of Coroners in this County, in which many murders were called to my attention, and which I carefully investigated, beginning with the murders of violence in which no question of insanity was involved, and a great many cases in which the question of the sanity of the murderer was involved, I have appeared in such cases as the Rosenthal case, and the cases of the Lomas and Shibley children, which are entirely different and far separated from each other. In the Rosenthal case mere ruffians, murderers, gangsters, because of money, shot a man in a public street from an open automobile. In the Lomas and Shibley cases in 1910, in Highbridge Park, two little children, one five, and one six years old, while playing in the park, were shot down by an unknown assassin who subsequently was apprehended about three months later. When the man was apprehended, it was found that he was a man who had already previously been in an insane asylum, a paranoiac, a violent paranoiac, who had been hidden by a hunchback mother because he had been the illegitimate son of a member of the judiciary who now is dead, and who never acknowledged his paternity, and may his soul rest in peace! But that this man was a paranoiac there was no question. That he shot in cold blood two children, one five and one six, whom he never saw in his life, there is no question. For the question that we must go to, we must go even farther back than the common law; we must go back to the old Hebraic law. It has been a question and a bone of contention whether the man or the woman, the boy or the girl, who committed the crime of murder was sane or insane ever since Biblical days. In the old Hebraic code it has been written: "an eye for an eye; a tooth for a tooth; a life for a life";—and yet Cain went and killed Abel. But did they take Cain's life? There is nothing in history or ancient literature that I can find to show they did. They said that Cain was banished, and that was his punishment. Was Cain insane? Was his banishment because of the fact that in an insane fury he killed his brother? Nothing in history that I know of has ever shown.

Dr. Swetlow spoke of the Hans Schmidt case. In the case of Hans Schmidt I was the Coroner. Hans Schmidt was an alleged Catholic priest, subsequently denied by the Catholic Church. He was a man of most exemplary habits. He killed Anna Ammuller after a criminal operation. He dismembered the body and disposed of various parts of it so that some were found on the east side of the river, and some on the west shore, and two inquests were held, one on the east shore at which I presided, and on that jury I had twelve of the most famous men in New York City, and the other inquest was on the Jersey side, but from the day of his arrest, not up to the time of arrest, but from the day of it, he immediately, upon being placed in his cell in the Tombs, took upon himself a slovenly attitude; in other words, he would not shave; he would not wash himself; he would not take the ordinary care of his person that an ordinary man would. At the day of the inquest, after having been before me a short time before that,

perhaps three weeks, when he was clean shaven, well groomed, carefully attired, and appeared in no way out of the ordinary, he appeared—a slatternly individual with whiskers, having long hair out of all proportion, matted down, and just to look at the man one would think "This fellow looks like an insane man." Yet on the face of it, you could see that it was not a case of insanity, but that he was assuming the appearance of insanity. He was so well prepared that he had overdone it, and the case on going to the Court of Appeals, they agreed that he was sane at the time of the crime, because following the crime, from the time of his commitment to the time of his trial, there was no question that it was not the act of an insane man.

But let us get down to the meat in the cocoanut. The trouble is between the doctor and the lawyer; subsequently the lawyer becomes the judge, and the doctor becomes the psychiatrist. It is a simple transition. The question raised is, is the man medically insane, or is the woman medically insane, or is he or she legally insane? That is where the great trouble lies—the question of legal insanity and medical insanity. In legal insanity it is construed by the best opinions of judges all over the whole world—whether they are Scotch, Irish, English, American, and even far-off Czechoslovakian—it makes no difference where the judge may be, the question is, did the individual know the quantity and quality of his act? If he did, he was sane. If the individual did not know the quantity and quality of his act, if he did not know what he was doing, he was insane. That is where the stumbling block comes in. Let us take Harry K. Thaw. Thaw walked into Madison Square Garden and in a moment of insane fury shot Stanford White. Why? Because it was alleged by somebody that Stanford White had done something to Harry Thaw's then wife. Then the bright legal mind evolved the fact that he must be insane, because only an insane man could walk into Madison Square Garden and shoot another man at a table, and then, most ridiculous of all, they thought they must give some name to this, because a name means nothing. "Sticks and stones may break my bones, but words will never hurt me." So they called what Thaw was suffering from *Dementia Americana!* and they did not get away with it, because nowhere in the literature of medicine does there appear such a thing. Harry Thaw was declared insane on the second trial; he went from one prison for the insane to another, and he finally escaped from the third, or last, insane asylum in which he was placed. When he escaped the law became so befogged that Thaw became sane again, and went his way, and began to steer for trouble, for Harry Thaw was still insane, because he was a paranoiac, and he will continue a paranoiac to the last of his days, if he lives to be 110.

The difficulty is the question between medical and legal insanity, and if the bright minds of the country, both legal and medical, could get together and decide what positively is a criminally insane act, then we would solve the problem, but we must not forget that as modern science progresses, there may be certain changes that may help us in the solution.

JOHN KIRKLAND CLARK, Esq.: I beg to differ with all of the speakers so far! I do not think it makes any difference whether we are going to get the doctor to agree with the lawyer, or the lawyer to agree with the doctor, or whether we lay down any rules.

In the first place, you cannot get the doctors to agree among themselves; in the second place, you cannot get the judges to agree among themselves; and how are you going to get them to agree with each other? I think we are losing sight of the actual purpose and the actual object of the discussion of this problem of anti-social conduct and its treatment.

This is the third in a very interesting series of meetings, the first in which we have taken up the medical aspect. We had that eminent legal theorist, Dean Pound, talk to us about the nature of crime. We then had that eminent practical authority, Clarence Darrow, talk to us, and now we have an equally eminent medical authority to outline from the point of view of the medical profession how absurd what the judges have written is.

Granted that it is, what is it all about? We are trying to determine just one thing; that is, what is anti-social conduct? It is conduct which is dangerous to the community. The person who is found guilty of anti-social conduct is to be treated in such a way as either to protect the community, or to teach him to comport himself if possible in a social rather than an anti-social manner, and how do we go about it? We find a man who has done something wrong, and we arrest him, and put him in the hands of what we call the criminal law, and what do we get?

We always get a jury of 12 men. That is what determines in every case whether a man is to go to jail; whether a man is to be confined in an asylum or prison; whether a man is to be hanged or go to the chair. In the final analysis no one goes to jail, no one is hanged or electrocuted without the concurrence of 12 men, and it does not matter what

the doctors say,—those 12 men have practically the final say whether a man is going to be confined or executed for anti-social conduct. You do not believe it? I have seen it.

Twenty years ago we had some other bank failures, similar to the present ones. A man named Robins had a bank not far from here, and was also running a savings bank, the Northern Bank of New York. That was one of the very few New York savings banks that ever failed. The bank was closed. Robins was immediately committed on a commitment by a "next friend", so-called, with the aid of two of the outstanding psychiatrists of the day to a sanitarium, and he was later brought to New York charged with crime. We got an indictment against him in two days. What happened?

He had an outstanding member of the bar, well versed in criminal defense, for counsel,—William Travers Jerome. Jerome maintained that Robins was insane. Jerome knew something about it, for he had tried the Thaw case. He got 13 alienists, and by the grace of God, all 13 agreed, and they all agreed that he was insane. They brought him up before one of our learned jurists and a jury of 12 men, and after four or five of the alienists had testified, Robins himself was put on the stand. Jerome asked if they desired further enlightenment from the other experts, and they did not. The jury went out, and in 30 minutes came back. They found him sane, they said. He came into court and pleaded guilty, and if the learned doctors were right, he had not sufficient mentality to determine whether or not he should plead guilty, but he did plead guilty just the same, and went to jail, though the alienists all said he was insane. I used to know him pretty well. He worked daily for a year in my room when I was Assistant District Attorney. Unquestionably he was unbalanced; unquestionably he was guilty. I would hate to try out anybody in this room on the same sort of test, for almost everybody is a bit unbalanced on some lines. I know I am "cracked" on some subjects!—and probably a great many of you here are. The next time I saw that man he was trying a case, although he was not a lawyer, in Brattleboro; he was cross-examining a witness. I know "it cannot be done"—but he was doing it. He was a "crazy" man, according to all the alienists, but he got away with it.

One of the most fascinating cases in modern criminal and medical history is that of a man in White Plains who was accused of feeding his wife arsenic and germs which he got from the Willard Parker Hospital. His counsel was apparently going to make a plea of insanity. He went into court and his counsel asked the questions tending to bring in the question of insanity. The district attorney asked if he might have the opportunity of examining the defendant, and he was examined by the district attorney's experts. The court called in independent experts of its own. The experts for the court found the man insane, and he was sent to Matteawan. In just one year he was released from Matteawan. The doctors found he was no longer insane, and he was let out. He was still under indictment for attempted murder, but his wife cured that,—as she claimed, I have heard, to have cured his insanity. She moved to Rhode Island.

What are we going to do with people who are guilty of anti-social conduct? I cannot believe that any sane man goes out and kills another man. I think the very fact of deliberate killing is strong evidence of a mind that is not sane, but there are killings under such circumstances that the average man in the street, and even those of us here who think we are above the average, think that the world would be better if that man were electrocuted. The humorous thing, if one can speak of humor in this connection, is that, if we find a man is so lacking in mentality that he is not sane, it is illegal to put him in the electric chair, but if we find a man has sanity, it is quite all right, if we find he did the killing, to treat him as he treated the other fellow,—that is, to carry out the old rule of an eye for an eye, a tooth for a tooth, a life for a life,—entirely contrary to all our modern ideas of the treatment of such offenders.

So I say that there is nothing definite which can be done about it. All that can be done is what we are doing here,—discussing it, getting a common-sense point of view about it, circulating through the community a common-sense point of view until the average man gets it, and then when the question comes before a jury, we are going to have a more intelligent treatment of what we call guilt or innocence by our results in the jury, as to whether the fellow is to be sent to the electric chair, confined in a medical hospital or in prison.

That is what it is all about. I heard somebody mention right and wrong. Anybody who heard Clarence Darrow talk would tell him to try to establish if there is such a thing as right and wrong, and if there is no such thing, how are

we going to treat a man who does not know the difference between right and wrong when he commits an act? I believe the situation is not desperate. I think we are governed by common sense, but not because of the lawyers, not because of the judges, not even because of the law or the doctors, but because the average man in the street knows about how a thing ought to come out, and pretty generally brings it about.

**DR. THOMAS S. CUSACK:** I thought the question before this body was Anti-Social Conduct and the McNaughton Rule, and not that of criminal punishment; that is not a phase of this question. The McNaughton Rule lays down definitely known facts. If I am wrong, I will stand corrected. Was there such a defect of reason which precluded the individual from knowing or not knowing the nature and quality of his acts? It all hinges on the word "know". I think we must first go back to the domain of normal psychology to evaluate the word "know", and I think myself that many witnesses fail hopelessly when they try to evaluate the word "know", if they have not studied the science of normal psychology. "Knowing" an act pre-supposes a mental process; will-to-do in the first place,—the intelligence passing upon it, selecting out a particular thing, and then the judgment of the individual formulating a conclusion. If an individual does not possess the training to evaluate a normal act, how is he going to evaluate an abnormal act, which is a criminal act? However, the McNaughton Rule does not err. The question here before this body is the McNaughton Rule, and not the question of punishment for crime. We are here to evaluate the responsibility or irresponsibility of a particular act. The McNaughton Rule says "know", but the McNaughton Rule has not defined the conditions upon which this rule is postulated. The McNaughton Rule in '43 did not specify what was insanity in the first place. In the second place, the rules are not wrong in holding that irresponsibility is only an inference that may or may not be drawn from insanity, but where they err is attempting to define precisely the conditions under which the inference is legitimate. Why is it wrong? Because the McNaughton Rule or Rules as such identify responsibility with knowing and reasoning, whereas as Dr. Swetlow, the speaker of the evening, said a while ago, any medical man who has lived or worked in a State Hospital will know of many patients who have shown extreme cunning in the planning of their acts, and have known that their acts were against all laws, human and divine, and yet were regarded as insane. Why? Because the McNaughton Rule has disregarded two very important conditions or attributes of the mind. It leaves out the emotions and the volitions. Because normal psychology states that an intact mentality must depend on the harmonious balance of the three faculties, emotion, volition and intelligence, hence, if an intact mentality is determined by one faculty only, intelligence, and the other two disregarded, then such a sophistic conception of mental responsibility may appear plausible. As a matter of fact, 58.9 per cent. of all cases in our State Hospitals come under the category of dementia praecox. And what is dementia praecox? It is not a disease of the intelligence. It is not a disease of the knowing faculty, but it is a disease of the will and the emotional content. I believe we should evaluate an individual from all three standpoints, and I might say that if the gentleman who spoke about the Schmidt case would refer to Dr. White's book on Crime and Criminality, he would find explained some mistakes in justice, because Dr. White said at the moment in question, at the time fixed for the commission of the act, did the individual *know*? White says at the time Hans Schmidt took his knife and brought it across the neck of Anna Ammuller he was acting on a delusion from above. He thought he was doing the right thing.

Now the question is law and medicine. Law is very abstract. Medicine is very concrete. Medicine is progressive. Law harps back to decisions in the past. It will not accept scientific matters concerning up to date facts, and I am of the opinion that to evaluate an individual who has committed anti-social acts, one must evaluate the *totality* of the personality at various levels in life, and then let the lawyer ask the question, "Doctor, did the individual know the nature and quality of his act?"

**JOSEPH BEHILF, Esq.:** It had not been my intention to say anything in connection with this very interesting discussion until the last speaker said there was a conflict between the scientific mind and the legal mind, or words to that effect. I would like to contribute one concrete example as to the scientific mind in an actual case. Mr. Clark has given us some of his experiences as Assistant District Attorney and subsequent thereto, and as an Assistant Corporation Counsel I had an interesting case some years ago concerning a wo-

man who believed that she was being persecuted by a well known brewer. This brewer or his son had a number of tenements on the East side, and he had a janitor or superintendent in the building in which this lady lived. She thought this janitor was circulating stories about her moral conduct. She said she was a sister of the Servian minister to France. The brewer's son, the owner of the building, finding that his superintendent was being annoyed in this fashion, had the lady taken to court, and the magistrate told her that she should desist from her course of action. She did not do that. She still continued to molest the man, and finally a committee was appointed to pass on her sanity, and this committee determined that she was insane. She was sent over to Ward's Island and she was kept there for three weeks, and then they told her that she was not insane and let her go. When she got out she continued to molest this superintendent. She went to two of the alienists at Bellevue who had declared her insane, and that is where I came in to defend these alienists, at a trial of an action she had brought for a million dollars against the alienists and the brewer. She went to these alienists and represented herself under another name. She said that she would like to have them pass on her sanity. For \$25 apiece they issued a certificate of sanity, and on the trial of this million dollar action against them one of her points was, as urged by her counsel, that these certificates were the very best proof that she was sane, and that these men had made a false diagnosis of her case. It appeared from her incoherent letters that she was a paranoiac and Judge Lehman dismissed the complaint, but he said to the brewer, "If I were you, I would pay this woman's passage back to Servia." The brewer said, "Oh, no." Three months afterward he was shot down by her on the street. The woman is now in an asylum for the criminal insane.

**DR. WILLIAM STEINACH:** Owing to the lateness of the hour. I will only say a few words. If, as Dr. Swetlow said, our conduct is the result of our environment, or instincts, as the Freudians would have it, what would become of our law, all our jurisprudence? If a man commits a crime, and all his conduct is the result of his subconscious urges, I do not see that we have a right to punish him, and, under such a rule, all our jurisprudence would fall to the ground.

In reference to the McNaughton case, we must not forget just what took place. If I remember correctly, it was the answer given by the Lord Chief Justices in England, to the question propounded to them by the House of Lords as to what should constitute responsibility when mental disease or insanity was present. If you remember, McNaughton was acquitted on the ground of insanity; there was great furor all over England and the people were very much alarmed. The Lord Chief Justices were asked by the House of Lords to define what should constitute responsibility in mental disease and on their answer is based the law as we have it in the Penal Code, namely, that in order to be excused for responsibility on the ground of insanity, a person must be suffering from such a defect of reason as not to know the nature and quality of the act, or that it is wrong. Further on in the Penal Code, it states that irresistible impulse shall not be a defense for a crime. In referring to the McNaughton Rule, I think that Dr. Cusack was correct when he said that the rule implies that there must be a certain train of reasoning and perception implied in the word "know". When we say that we "know" a thing, we mean that we apprehend it clearly and distinctly; the nature of the act referring to its essential character and its quality, the consequences. If you go to a State Hospital, 80 per cent. of the inmates apprehend what they are doing, but I think you will agree that they do not apprehend clearly and distinctly which is implied in knowing what they are doing.

Based on a strict interpretation of the McNaughton rule, the only acts that could be excused would be those that were aimless and accidental,—where the individual thought he was doing one thing and he actually was doing something else. Such would be so obviously irrational that they rarely would be litigated. If a man is so bereft of reason that he does not know what he is doing, the matter will rarely be contested. However, the whole question simmers down to one of responsibility, and I think if we judge the matter in this sense, very few people who suffer from any of the severer forms of mental disease really know,—apprehend clearly and distinctly what they are doing. A number of years ago,—longer than most of us remember,—a charge was made by Judge Cox to the jury in the trial of Guiteau which is well worth reading. In it he stated that there is a borderline between sanity and insanity and at times the individual is on one or the other side of this line. This is especially applicable to that large class of psychopathic individuals who come before the courts. Guiteau had been examined and committed to an institution for the insane,

but escaped before he was taken to the asylum and later shot President Garfield in July, 1881, for which he was later hanged.

One of the previous speakers erroneously stated that Thaw was convicted at his first trial. To correct the error, I would say that the jury disagreed at the first trial, at which Mr. Justice Fitzgerald presided and at the second trial he was acquitted on the ground of insanity, and after the trial, Mr. Justice Dowling, who presided, asked one of Thaw's experts if the condition would recur, and then committed him to Matteawan, from which he later escaped, was returned, and then discharged on a writ. When the writ was being heard, one of the experts for the defense was asked how it came about that he had said at the trial that Thaw was insane and now that he was sane. He answered that at the trial he had answered an hypothetical question built up by an aggregation of incidents, but now he was testifying on his actual condition.

We have been talking about this matter for many years and gotten nowhere. The whole question is one of common sense, and until we get something better we had better rest content with the McNaughton rule. If we let down the bars many accused of crime suffering from the milder mental conditions and the psychoneuroses could evade responsibility and with the aid of expensive alienists and lawyers escape the penalties.

DR. THOMAS S. CUSACK: In 1923 a committee was appointed representing the British Medical Association and the British Psychological Association which spent two years in conferences on this question. If you look at the *British Medical Journal* about that time you will find notations about the month of April, stating that after many conferences, at which presided men of prominence in law and in medicine, the committee simply came to the conclusion that the McNaughton Rules can still stand, as they could offer no substitute.

DR. SWETLOW (closing the discussion): There was much said, with much of which I agree, and some to which I must take exception. If I fail to join issue with all of the speakers please attribute it to the fact that there were so many that I could not keep up with all.

A statement was made that there exists a dividing line between insanity and sanity. Where is it? Who has ever seen it? Who knows anything about such a dividing line? It is a legalistic concept and not a scientific one. It is something conjured up to make our concepts more tangible but, in fact, is unknown. We may have mild, moderate and severe forms of insanity. It is true there is frequently seen one passing through various stages in severity, but to say that when he does so, he passes the dividing line between insanity and sanity, is going rather far.

An argument was raised to the effect that if we did not have this law, the hysterics and neurotics would take the law into their own hands. We know that the hysterics, under no fear of the law, become blind, or paralyzed, etc. The psychiatrist maintains that any of these symptoms, whether it is a paralyzed arm, or blindness, or anti-social conduct, based on hysteria, are all the same, mere expressions of the unconscious mind manifesting itself in different ways. The penal code in no wise is a deterrent to them.

Another question was asked. "If we deny free will, what is the use of all our present jurisprudence?" To my mind our criminal jurisprudence requires overhauling. Scientifically, there is no free will—thus it naturally follows that our criminal code is defective for it is based on the concept of "intent". If the individual has no free will, then he has no intent. Those who have had some experience with the insane and who have been in the various nerve clinics can testify to the thousands who are not in control of what they are doing. Thus there is no use of punishing, for if there is no intent, there is no responsibility. I would not punish a man because he has leprosy or pneumonia. I can see no essential difference between a sick mind and a diseased body. It was not so long ago that the insane were treated as criminals.

I agree heartily with Dr. Cusack. I feel that the emotional content is the determining factor in conduct disorders. I cannot imagine any idea, wish or hope, that has not attached to it, or grafted upon it, some emotion elements. I think Bleuler illustrates it very clearly when he asks you to choose between a square and a circle. The moment you put your hand on the square you imply preference for the square. You can substitute the word "like" for that of prefer. "Like" is an emotion, and thus you choose one instead of the other, because of the superior strength of one emotion. Whatever you do in life, your final conduct is determined by the intensity of the emotions. Thus we feel that the ideas that drive us forward in any direction are not in the conscious

level of the intellect, but hidden away in our unconscious, highly charged with the element of emotion. Thus our conduct is determined. As a result what appears to be on superficial examination intentional, on very close examination will very frequently resolve itself into something quite different, often unbeknown to the actor himself.

Let me reply to the question concerning the two alienists who first found the lady insane and at another time sane. This proves all the more that these people are frequently very subtle, very clever and cunning. If a person were to walk into my office, or the office of any other alienist, and on being questioned concealed important facts throwing light on his actual mental condition, we would of course declare him sane. I do not see that that is an indictment as to the honesty or ability of the alienist.

In reply to Dr. Feinberg's discussion, referring to gangsters and murderers. Such terms when used in a popular sense convey a feeling, but I do not think they are well chosen from the view of the scientist. We have not had the opportunity to examine these so-called gangsters and murderers. Are they morphine or cocaine addicts, alcoholics, praecoxes, syphilitics, etc.? What has their past conditioning been? Murderers and gangsters mean nothing as a class when individuals are discussed scientifically. Thus when we read of these classes, we are ignorant of much which might easily explain their anti-social conduct. The doctor further raises the point that when they are indicted they are observed for eight weeks and few are found legally insane. My paper has attempted to show that legal insanity and medical insanity are based upon entirely different concepts.

#### Cases of Acute Purulent Otitis Media

(Concluded from page 108)

II. The aural discharge is longer in the cases showing streptococcal infection than in the cases with a pneumococcal infection. Of the latter group, the pneumococcus I and IV are much less severe than the pneumococcus III infections.

III. About 9 per cent of the acute ear infections develop a surgical mastoiditis. This percentage is somewhat higher in the streptococcal group, and is lower in the pneumococcal group.

IV. Our percentage of meningitis was .08. We feel that the series of cases is too small to make this of much value.

#### Professional Building.

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#### Actinomycosis Cleared Up by Electro-Coagulation

L. H., aged 22 years; blood pressure, 110/75; weight 107 $\frac{3}{4}$  pounds; hemoglobin, 70 per cent. Patient had been treated for almost one year for a fungus growth at the base of the tongue, the fauces and the oropharynx. The gradually increasing strength of a silver nitrate solution, applied directly to the growth afforded but temporary relief. Recurrence of growth was evident a few days after each of the caustic topical applications. The ready removal of some small papillomata from the epiglottis by means of electro-coagulation suggested that possibly the same means might destroy the fungoid parasitic growth without injuring the adjacent structures.

Treatment by electro-coagulation was begun on March 10, 1930. The diagnosis of actinomycosis had been made while the patient was under treatment at the Morrisania Hospital, the examination revealing a typical case of mycosis leptocephalica of a most persistent strain. The base of each protruding white stem-like growth was touched by the active needle electrode of the bimetallic endothermy current. The growth was so abundant and involved so extensive an area that twelve mild doses of electro-coagulation were necessary. The maximum current used was four hundred milliamperes. Fulguration was used in the terminal stages, since the dehydration process is always beneficial in hastening the results of coagulation. At no time did any of the parasitic lesions recur following the coagulation dose. The time required for total cure depended upon two factors, namely: the mildness of the dose and the number of bulbous growths to be treated. Complete destruction of the fungus infestation was accomplished in six weeks.—Lewis J. Silvers, M.D.—N. Y. S. *Journal of Med.*, Sept. 15, 1931.

## Special Article

### *Social Insurance—Most Governments Are Inefficient or Corrupt —Some Are Both*

EDWARD H. OCHSNER, M.D.

Chicago, Illinois

ONE of the very first questions that naturally arises is: Have any of our governmental agencies so conducted themselves in the past as to make it reasonably safe for us to entrust so stupendous a function as universal social insurance to any branch or department? I maintain that most of our local as well as state governments are inefficient or corrupt, and some are both.

Let any one who doubts the correctness of this statement spend a little time to look around with a critical eye and observe how most local governments, the various departments of the state in which he lives, and the departments of the federal government are conducted, and I am convinced that he will find more inefficiency than he has ever dreamed could exist. If he does not personally know of corruption and inefficiency in government, let him scan one single daily newspaper regularly for a month in order to be convinced. And what else can one expect who is at all familiar with politics as it has been played and managed in these United States in the year 1931—the manner in which most men secure their nominations and later their elections, and to whom they are beholden when they take office?

We have all seen the statement repeatedly in the public press, but have never seen it successfully refuted, that in many of the political subdivisions of our country only sixty per cent of the taxes collected are effectively spent, the remainder being frittered away, wasted or stolen. This inefficiency and corruption is due to many causes of which some of the most important are:

The fact that so far no formula has been discovered according to which the most efficient, honest, industrious and worthy members of the community can be secured for public office. Nor has there been any method devised whereby spoils politics, favoritism, pull, nepotism, waste and graft can be eliminated with even a reasonable degree of certainty. The individual who could solve these two problems would not only be the greatest benefactor of the human race but the wisest man the world has so far produced. Plato tried to solve this problem twenty-three centuries ago when he wrote his Republic. For a time he actually thought he had found a solution. He prevailed upon the King of Syracuse to adopt his plan and put it into operation. The King tried it for a while, tired of it and sold Plato into slavery. Some good friends ransomed him. After that he was not so sure that his scheme would work in practice. Things are not much different today than they were in the time of Plato. Only worse. Worse because of the increase in population resulting in larger governmental units, the enormous increase in the number of those exercising the franchise, the increase in the percentage number of ignorant voters and the ever increasing astuteness and finesse of our practical politicians.

Inefficiency and corruption is so common that we have become callous to it. We are annoyed by it; we grumble and complain mildly about it; we pay our ever mounting taxes if we have anything with which to pay

and "let it go at that." It almost seems as though we humans had adopted David Harum's dog philosophy and were applying it to ourselves. He says:

"A certain amount of fleas is good for a dog; it keeps him from brooding on being a dog."

The best illustration of governmental muddling in general is to be found in the mess most governments of the world have made of themselves during the past twenty years. As examples, we need but call attention to the virtual bankruptcy of Germany and Austria, the maladministration in Russia, the revolutions in Spain, China, Central and South America, the dictatorships in Poland and Italy and when we come nearer home, the general lawlessness in the United States with its murders and kidnaping for ransom; conditions in the city of New York as disclosed by the Seabury Investigation; the virtual bankruptcy of Chicago and Philadelphia, and the near bankruptcy of many other governmental units.

Let us study conditions in our own country a little more in detail in order to determine whether it would be wise or even safe to entrust the federal, state and local government, or any one of them, with supervision over the private lives of its citizens. (This phase of the problem will be taken up more in detail in future installments.)

2155 Cleveland Ave.

#### *General Principles of Surgery in Cancer of the Large Bowel*

*(Concluded from page 112)*

position that it will not interfere with any of the subsequent operative procedures.

In those cases in which localization of the lesion is not possible and the urgency of the condition does not permit of extensive study, it is necessary to do an exploratory incision first, and if this is not suitable for the establishment of the fistula, one should not hesitate to make another incision and place the fistula in a suitable position.

Cases of acute obstruction are sometimes admitted to the hospital when the general condition of the patient is very poor, either because of the toxemia of the obstruction or because of the presence of some other serious disease. Operation in such cases is useless: it invariably results in a fatality and only hastens the end. Such cases should not be operated on at all: "Hands Off!" should be the slogan. They should be treated medically by proper cardiac stimulation, application of external heat, when in shock, hypodermoclysis, veneclysis, or transfusion. In other words, all efforts should be directed to the improvement of the general condition of the patient. Such treatment often yields admirable results and in a few hours a patient who appears moribund or hopeless may react most favorably and be converted into a fair surgical risk. Then when subjected to operation the patient may have an excellent chance for a good recovery.

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# Contemporary Progress

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## Medicine

### The Periodic Health Examination

In 500 health examinations, mostly in adults between the ages of thirty-one and fifty years, F. A. Faught (*Journal of Laboratory and Clinical Medicine*, 17:337, January, 1932) finds that 431, or 86.2 per cent., of this group had some definite complaint at the time of the first health examination; on examination all were found to have some definite defect. There were 112 of the original group who returned for one or more subsequent examination, but in only 70 of these was the information recorded sufficiently complete for comparative analysis. In these 70 persons, it was found, however, that a large percentage of the complaints or defects noted at the first examination had been corrected by suitable treatment and improved dietary and hygienic regimen. An unexpected result of the generally improved health in this group was the drop in blood pressure in 17 out of 25 persons who had shown abnormally high blood pressure at the first examination, while of 7 cases of hypotension, 4 showed an increase in blood pressure. No specific advice or treatment directed toward the abnormal blood pressure had been given in any of these cases. From his study of this group, the author concludes that a "surprising number" of physical defects and abnormalities and detrimental habits may be found in apparently healthy persons by means of periodic health examinations; there is little difficulty in persuading persons of average intelligence to proceed with corrective treatment, even if it entails special examinations, prolonged treatment or operation; there is little doubt that such systematic discovery of defects and abnormalities and their correction will lead to better health, greater efficiency and longer life.

### Salt Restricted Diet in Tuberculosis

E. Mayer (*Journal of the American Medical Association*, 97:1935, Dec. 26, 1931) discusses the value of the diet recently advocated by Gerson, Sauerbruch and Hermannsdorfer in the treatment of tuberculosis (sometimes known as the G. S. H. diet). One of the main essentials of this diet is almost complete exclusion of sodium chloride and the substitution of a mineral salt mixture poor in sodium, but rich in calcium—chiefly calcium lactate and calcium phosphate with calcium and magnesium combinations in the form of double salts. Meats are restricted; large amounts of fresh uncooked vegetables and fruits are given, much of it in the form of freshly expressed fruit and vegetable juices. Cod-liver oil and the salt mixture are given three times a day. Mayer's own experience with this diet at Saranac Lake has led him to essentially the same conclusions, in regard to its value, as those expressed in the evaluation of it by the Hamburg Medical Congress. That is, that the diet is of the most value in the treatment of lupus

vulgaris, in which it has a definite therapeutic effect, lupus of the mucous membranes reacting even better than lupus of the skin. It is also of value in some cases of bone and joint tuberculosis. Its value in pulmonary tuberculosis is not yet determined. Symptomatic improvement has been observed in some cases with this diet, but the effective factor cannot be evaluated. The diet has had an undoubtedly favorable effect on functional gastro-intestinal disturbances in patients with pulmonary tuberculosis.

### The Bargen Organism in Ulcerative Colitis.

In an examination of 314 patients at the Lenox Hill Hospital, New York City, H. A. Rafsky and P. J. Manheims (*American Journal of Medical Sciences*, 183:252, February, 1932) found the Bargen organism in only 2 of 30 cases of ulcerative colitis. Proctoscopic examination was made in all these cases and showed definite ulceration, but no deep extensive lesions; cultures were taken from the ulcerated areas. In 111 cases of spastic colitis, the Bargen organism was isolated in 2 of the 22 cases in which proctoscopic examination was made, but no ulcers found; in the remaining 89 cases, stool cultures were negative. In a group of 173 miscellaneous cases, the Bargen organism was found only once in a stool culture from a patient with chronic arthritis with no evidence of ulcerative colitis. The typical heat resistant enterococcus was isolated from 306 of the 314 cases. A study of the fermentation reactions and cultural characteristics of the Bargen diplococcus and the enterococcus found so constantly in the stool cultures, showed the two to be closely similar. The chief factor in differentiation of the two is that the enterococcus is viable after one hours' heating at 60° C., while the Bargen organism is killed at this temperature. The authors conclude that the Bargen diplococcus is a strain of enterococcus, and that it has not been proved to be a specific etiological factor in ulcerative colitis. It should be remembered that every Gram-positive, lancet-shaped diplococcus found in the stools or proctoscopic cultures is not necessarily a Bargen organism. The heat resistance test must be made for complete identification.

### Posterior Pituitary Extract and Gastric Hyperacidity.

P. L. Drouet and J. Simonin (*Bulletin de l'Académie de médecine*, 107:30, Jan. 5, 1932) note that in one case in which posterior pituitary extract was given in the treatment of diabetes insipidus, there was a marked diminution of gastric hyperacidity and entire relief from symptoms of a duodenal ulcer from which the patient had suffered for some time. On the basis of these findings, the authors have used injections of posterior pituitary extract in the treatment of cases of hyperchlorhydria with functional gastric disturbances and in 4 cases of gastric ulcer. In all these cases the gastric acidity was definitely reduced as shown by repeated gastric

analysis, including the histamine test. In all cases the symptoms were entirely relieved, and in the case of gastric ulcer, roentgenological examination showed the ulcer niche had disappeared entirely or was much reduced in size. Twelve to seventeen injections were sufficient to obtain improvement in these cases, and no ill effect of the treatment was observed. The effect of the posterior pituitary hormone on the gastric secretion the authors attribute to its action on the chloride metabolism with resulting increased excretion of chlorides in the urine.

#### Diet and Anemia.

R. A. Kern (*Annals of Internal Medicine*, 5:729, December, 1931) reports one case of pernicious anemia in which the patient had eaten no meat for several years; in this case the author believes there was an actual deficiency in the extrinsic factor contained in animal protein necessary for erythropoiesis; there was no apparent vitamine deficiency as the dietary included a large variety of fresh vegetables and fruits. In 2 other cases of pernicious anemia, there was a definite dietary deficiency, the diet being deficient in animal protein, and also deficient in iron and vitamines, especially B and C. In 6 of 25 cases of chlorotic anemia, there was a definite deficiency of iron and usually of vitamines in the diet. In 164 cases of secondary anemia of other types no definite evidence of a dietary deficiency was found.

#### The Cardiorespiratory Test.

A. Eustis (*Annals of Clinical Medicine*, 5:842, January, 1932) describes his modified technique for the cardiorespiratory test first described by Frost as a test of myocardial efficiency. After the blood pressure has been taken with the patient seated, the pressure of the cuff is released and the patient told to expire through the spirometer after full inspiration; the pressure in the spirometer during exhalation should be kept uniform at 20 mm. mercury. The systolic pressure is again taken as soon as expiration is completed. Without again releasing the pressure in the cuff, the patient is directed to inhale and exhale through the spirometer as before; blood pressure is taken just prior to inhalation and three readings are made during and after exhalation. Normally there should be a rise of 30 to 40 mm. in the systolic blood pressure after the third exhalation. A failure to obtain this response indicates a weakened heart muscle. The test should not be made on persons with marked dilatation of the heart; it should be made with caution on patients with a history of anginal attacks and those with high blood pressure. The test is of special value in the study of chronic myocardial insufficiency. Of 160 cases studied by this method, 56, or 35 per cent, showed a poor response to the test, i.e., a rise of less than 20 mm. in systolic pressure; in all but 5 of these there were other evidences of a weakened heart muscle; and in the 5 cases, the age and general condition of the patient indicated the possibility of myocardial weakness. In some cases treated by graduated exercises and other therapeutic measures to tone up the heart muscle, the response to the test became normal following treatment.

## Surgery

#### Postoperative Pulmonary Complications

C. C. Stewart (*Canadian Medical Association Journal*, 26:55, Jan., 1932) reports a study of postoperative pulmonary complications at the Montreal General Hospital in five years—1926 to 1930. In 27,756 surgical opera-

tions in that period, there were 203 with pulmonary complications; of these 72 died, a case mortality rate of 36.7 per cent. The most frequent complication was bronchopneumonia, 92 cases with 39 deaths; lobar pneumonia occurred in 26 cases with 6 deaths; there were 13 cases of pulmonary embolism with 7 deaths; and 7 cases of massive collapse with 2 deaths. The author suggests that some cases of non-fatal bronchopneumonia with a typical temperature course and early resolution may in reality have been cases of atelectasis. The mucus plug theory as the causative factor of atelectatic areas in the lungs seems plausible to the author. The majority of fatal pneumonias occurred after upper abdominal operations; following such operations the normal excursion of the diaphragm is inhibited and cough almost completely suppressed. Post-operative pneumonia is nearly three times as frequent in men as in women. The incidence of pulmonary complications was higher after ether anesthesia than after other anesthetics. In operations on the upper abdomen, where the risk of pulmonary complications is highest, ether is not used or is given by the intratracheal method. In patients with upper respiratory tract infection, operation is delayed, if possible; if operation is imperative, nitrous oxide anesthesia, combined with local anesthesia if necessary, is employed.

#### COMMENT

*Posture during and after operation is of importance. The Trendelenburg position appears to favor bronchial drainage and the integrity of the upper abdominal musculature is not impaired. Preexisting upper respiratory disease predisposes to pulmonary complications. Unskilled or careless hands, unwise choice of the anaesthetic and non-observance of the modern resources for post-operative care are responsible for most of the post-operative pulmonary complications.*

D. Band and I. S. Hall (*British Journal of Surgery*, 19:387, January, 1932) says that the use of the x-rays in chest diagnosis and a closer investigation of the post-operative chest from a clinical standpoint probably account for the increasing number of pulmonary collapse cases now reported. They report 4 cases of postoperative pulmonary atelectasis following operation for gastric and duodenal ulcer in 2 cases, and appendectomy in 2 cases. From experiments on dogs, the authors conclude that the chief factors in the production of postoperative pulmonary atelectasis are: A viscous intrabronchial secretion (viscosity 75 per cent); abolition of the cough reflex; and limitation of respiratory movement. The prevention of postoperative pulmonary collapse is all important. Where possible bronchial catarrh and oral sepsis should be corrected prior to operation. The prevention of accumulations of mucus in respiratory passages should be attended to by the anesthetist. The use of morphine preoperatively is not indicated on account of its effect on the respiratory center. In cases in which the nature of the operation inevitably involves some limitation of respiratory movement, carbon dioxide inhalations are of value to secure full aeration of the lungs. If atelectasis does develop, carbon dioxide inhalations are indicated in treatment; they should be given for ten minutes every hour. In early cases of pulmonary collapse complete recovery may be brought about in forty-eight to seventy-two hours. In some cases also bronchoscopic aspiration of the sticky mucus gives much relief.

#### Bacteriophage in Wound Treatment

F. H. Albee (*American Journal of Surgery*, 15:228, February, 1932) notes that for some time he has found the Orr treatment effective in the treatment of osteomyelitis; recent studies of cases treated by this method have

convinced him that the results are due to the action of the bacteriophage. One should not use local antiseptics when bacteriophage is locally desired. Broth cultures of pus from the osteomyelitis lesions were made and filtered; the filtrates were found to contain the lytic principle (bacteriophage) active against the organism infecting the wound and allied strains in 94 per cent of cases. The most potent 'phages were those active against the colon bacilli and staphylococcus. In half of the remaining 6 per cent in which bacteriophage did not develop spontaneously, a potent 'phage could be developed in the laboratory. In only 3 per cent was it impossible to develop such a 'phage—especially in *Streptococcus hemolyticus* infections. In several such instances the 'phage appeared later in the wound, and healing occurred. In selected cases of osteomyelitis, the author introduces into the wound a specific laboratory-bred 'phage. In other cases he uses the Orr treatment, but without the use of iodine after debridement and sauerization of the infected bone. The operative wound after these procedures is packed with yellow vaseline and vaseline gauze; dressing and a cast are applied and left intact for eight to ten weeks. In some cases the wound is entirely healed at the end of this period; if not, the dressing is reapplied after simple cleansing. "In bacteriophage," Albee says, "we have for the first time an active *living* agent seeking out these minute tissue destroyers (bacteria) in nooks and corners just as ferrets hunt down rats in an infested house. . . . Ferrets, if left to pursue their hunt for a sufficient time, will rid the house of every rat. Will this active living agent, bacteriophage, in a similar way do away with the latent infection? It is too early to say; but the fact that it lives and reproduces as its feast of bacteria progresses, gives the surgeon hope that this may be true."

#### *A Method of Estimating the Thyrotoxic State*

W. Bartlett and W. Bartlett, Jr. (*Southern Medical Journal*, 25:12, January, 1932) note that the thyrotoxic patient is extremely sensitive to deficiency of oxygen; some patients who develop extreme restlessness and other signs of thyroid crisis after thyroideectomy can be quieted and relieved promptly by being placed in the oxygen tent. Occasionally in the authors' experience a thyroid patient has become so cyanotic on the operating table that operation had to be interrupted. In an attempt to identify such susceptible patients before the date of operation, the authors have adopted a test to determine the period of voluntary apnea—*i.e.*, the length of time the patient can hold the breath—after both forced inspiration and forced expiration, as a measure of the thyrotoxic state. Since this test has been used as a routine, no patients have become extremely cyanotic during operation. The test is made at least two hours after a meal, usually in the middle of the morning. The phase of voluntary apnea is measured in seconds, first, following maximum inspiration and then, following maximum expiration. In normal persons living a sedentary life, the duration of voluntary apnea is 45 seconds on inspiration and 25 seconds on expiration (45/25); in men who have done hard manual labor or had athletic training, the values are 75/40; in normal persons the ratio is slightly less than 2:1. In the thyrotoxic state the values for these two groups of persons are approximately 12/10 and 48/15. In both the duration of voluntary apnea is reduced, and the ratio between the inspiratory and the expiratory phase is abnormal. A comparison with other criteria by which the degree of thyrotoxicosis is determined it was found that the inspiratory phase of voluntary apnea varied primarily with the state of the circulation, the expiratory phase primarily with the level of

basal metabolism. This test has come to be regarded by the authors as most useful for the prognosis of a case of toxic goiter and as a criterion for the best time for operation and the nature of the operation to be done.

#### *Intra-Abdominal Local Anesthesia*

R. P. Caron (*Minnesota Medicine*, 15:8, January, 1932) reports the use of intra-abdominal anesthesia in certain cases. This includes infiltration of the abdominal wall and intra-abdominal splanchnic anesthesia; if necessary anesthesia of the abdominal wall can be supplemented by infiltration of the peritoneum. In inducing splanchnic anesthesia familiarity with the anatomy of the underlying structures and the general direction of the nerve supply is essential; the needle should be kept out of large vessels and should be kept in motion while the injection is being made. This form of anesthesia cannot be used where the operative field is infected, where there is "inflammatory matting" of viscera, or where very large tumors are present. It is indicated chiefly in cases where general or spinal anesthesia is contra-indicated; in cases in which spinal anesthesia is used, but must be supplemented before the operation is completed; in cases of prolonged debility from disease; and in the aged.

#### *Selection of Gastric Ulcers for Surgery*

F. H. Lahey (*Surgery, Gynecology and Obstetrics*, 54:251, February, 1932) reports that in the Lahey Clinic at Boston, Mass., a definite procedure is carried out in cases of gastric ulcer in which there is a question as to whether there is danger of malignancy. The patient is kept in bed from one to two weeks and given an accurate Sippy neutralization treatment. If symptoms subside, occult blood disappears from the feces, and the roentgenological examination shows the gastrict defect to be disappearing or to have disappeared, surgery is not advised. If the defect as shown by the X-ray does not improve and does not ultimately disappear, surgery is advised, especially so, if symptoms persist and occult blood is present. In such a case a partial gastrectomy is done. But by following out the plan outlined, needless surgery is avoided, without running the risk of overlooking malignant or potentially malignant lesions.

## Urology

#### *The Rose Cystometer in Neurogenic Affections of the Bladder*

J. M. McCaughan, S. G. Major and W. F. Braasch (*Journal of Urology*, 27:229, February, 1932) note that the Rose cystometer has been used at the Mayo Clinic since October, 1929. This instrument, first described by Rose in 1927, is designed to record simultaneously, as the bladder is gradually being filled with water, the capacity, the changes in pressure, and the subject's sensations of appreciation of temperature, desire to void, first pain of overdistention and severe pain of overdistention. In 80 cases in which cystometrograms were made by this method, cystoscopic examinations were also made in 72 cases, and cystoscopic and neurologic examinations in 46 cases. In 44 of the 72 cases in which cystoscopic and cystometric examinations were made, the diagnosis in regard to neurogenic or non-neurogenic bladder agreed (61 per cent), and in 28 cases (39 per cent) there was disagreement. In 46 cases in which a neurologic examination was made, there were 31 cases, or 67 per cent, in which the neurologic diagnosis agreed with the cystometric findings; and 33 cases, or 72 per cent, in which the neurologic examination agreed with the cystoscopic

findings. The real difference between the cystoscopic and the cystometric tests, the authors believe, is due to method. The cystoscopic method is almost entirely objective and the cystometric method is partly subjective, depending to a considerable extent on the patient's prompt report of sensory changes. The authors conclude that the cystometric findings are only occasionally of definite value without other corroborative data, either clinical or cystoscopic; their greatest value is probably in supplying additional data when the cystoscopic findings are doubtful. The method should, however, be used in further clinical research; the study of a larger number of cystometograms in conjunction with clinical, neurological and cystoscopic examinations will undoubtedly increase skill in interpretation and increase the practical value of the method.

#### COMMENT

*The balance between the subjective and objective elements in tests like this is not easy to maintain on an "even scale." We have patients who fear being hurt before undressing and hence exaggerate, and stoics who deny all signs until really suffering and all grades between. Objectively physicians are timid or indifferent. Nevertheless methods like this will be valuable as recorded experience permits rejection of errors under either source.*

#### Bacteriophage in Genito-Urinary Infections

E. W. Schultz (*California and Western Medicine*, 36:33; 91, January and February, 1932) reports results obtained in the treatment of genito-urinary infections with bacteriophage supplied by the Department of Bacteriology of Stanford University. Of 151 cases of chronic pyelitis and cystitis due to colon bacillus infection, 72 were definitely improved by treatment; of these 42 were cured both clinically and bacteriologically (28 per cent of the 151 cases treated); 17 were temporarily relieved, but developed recurrences; 13 were clinically improved, but did not become entirely free from organisms. In 40 cases of acute colon bacillus pyelitis and cystitis treated by bacteriophage, all but 5 responded promptly and were cured both clinically and bacteriologically, giving 87 per cent cures in this group as compared with 27 per cent in the chronic group; only 2 of these cases relapsed. There were only a few cases of pyelitis and cystitis due to organisms other than the colon bacillus which were treated with bacteriophage. Of 4 cases of staphylococcus infection, 2 recovered promptly; 2 cases of *Streptococcus fecalis* infection were both cured; one case of mixed coli and pyocyanous infection and one of coli and proteus infection failed to respond. Of 7 cases of chronic prostatitis due to staphylococcus infection, 2 responded to bacteriophage treatment; in both these cases the 'phage was instilled into the bladder; in all but one of those that failed to respond, the 'phage was given subcutaneously. Two cases of prostatitis due to colon bacillus responded within forty-eight hours to the instillation of coliphage into the bladder. In the treatment of pyelocystitis the 'phage must be instilled not only into the bladder but also directly into the renal pelvis; at least 30 c.c. of undiluted 'phage should be introduced into the bladder and 5 c.c. into the pelvis and retained as long as possible. The author is of the opinion that when an effective bacteriophage can be procured it should be given a trial in cases of genito-urinary infection. If it is beneficial, improvement will be evident within a few days.

#### COMMENT

*The sources of colon bacillus infections are overgrowth in the intestines often to 95 per cent of the total flora and filtration through the kidneys, at first without but finally with damage to kidney, pelvis, ureter and bladder.*

*Urologists are only drowsily, but not widely aware that just as there are typhoid carriers and diphtheria-carriers with only bacterial findings so there are colon bacillus carriers with normal urine except for the bacteria in it. When their removal at this period becomes a regular plan of treatment many urinary systems and lives will be saved!*

#### Alkaline Treatment of Chronic Nephritis

D. M. Lyon, D. M. Dunlop and C. P. Stewart (*Lancet*, 2:1009, Nov. 7, 1931) report a study of 17 cases of nephritis in relation to their reaction to certain types of diet. A basic type of diet was better tolerated by all these patients than an acidic type; the deleterious effects of an acidic diet could be counteracted by the administration of alkaline salts. In the more advanced cases the use of alkaline salts in addition to a basic diet was necessary to maintain an alkaline urine. When the alkali reserve of the blood was increased by the use of the basic diet or this diet plus alkaline salts, the blood non-protein nitrogen was diminished and there was definite clinical improvement. The beneficial effect of the basic diet was found to be due entirely to its alkalinity and not to the nature of the protein used. The authors' impression from their study of these cases is that patients with severe nephritis even "on the verge of uremia" may have life indefinitely prolonged by alkaline therapy.

#### COMMENT

*This paper is able and instructive but too little if anything is said about benefit and prevention in terms of removing sources of infection underlying the nephritis in teeth, tonsils and intestines. If such foci are not cured the treatment of the nephritis is embarrassed if not nullified.*

#### Plastic Operation for Ureteral Obstruction

H. H. Young (*Surgery, Gynecology and Obstetrics*, 54:26, January, 1932) notes that in cases in which obstruction to the ureter at or near the uretero-pelvic junction is caused by aberrant blood-vessels passing to the lower pole of the kidney, ligation and division of such blood-vessels to relieve the obstruction may interfere with the blood supply to the kidney and cause a definite impairment of that organ. In 2 cases in which ureteral obstruction of this type was present with resulting hydronephrosis, the author did a new plastic operation to relieve the obstruction without division of the blood-vessels. A somewhat elliptical area of the anterior wall of the dilated pelvis was excised; a larger area of the posterior wall was then excised; the anterior wall and the posterior wall were then sutured with chromic catgut in such a way as to draw the pelvis upward and the ureter upward and backward away from the obstructing blood-vessel. An additional small incision with a Heineke-Mikulicz closure was also employed to bring the orifice of the ureter nearer the lower pole and farther away from the blood-vessel. In both cases the results were excellent and renal function was restored.

#### COMMENT

*The tendency toward hydronephrosis has already been long existent through the obstruction of the vessel. Hence the plastic repair must leave no pocketing deformity of the pelvis for residual urine therein causing only another early hydronephrosis. This plastic correction is vastly better than transplanting the ureter into another part of the pelvis because the latter removes the normal origin of the ureter, which is a very important anatomical entity. Transplantations are invitingly ingenious, but as in the bladder, they all have ultimate cicatricial stenosis as a possible end.*

*Nephroptosis and Urinary Stasis*

H. L. Morris (*Radiology*, 18:56, January, 1932) notes that until recently he has used sodium iodide for pyelography, but has found uroselectan, or skiodan, equally satisfactory and practically non-irritating. For a study of the mechanism of the emptying of the renal pelvis, the patient is placed first in the prone position for fluoroscopic examination. To locate the tip of the catheter, only 0.5 c.c. of the opaque solution is introduced at first; 1 c.c. at a time of the opaque solution is then added until the renal pelvis is clearly outlined. At this time films are made, and the degree of respiratory excursion of the kidney noted. The patient is then placed in the erect posture and the actual amount of excursion of the kidney is noted. If any delay in emptying the renal pelvis is noted in the erect posture, the kidney should be elevated by counter-pressure with the hand. The pelvis may empty readily even though there is an abnormal amount of motility of the kidney; on the other hand with motility, there may be delay in emptying owing to fixation of the ureter. The table used for this examination should be adjusted to place the patient in the standing position; the sitting posture with the thighs flexed does not, in the author's opinion, give a true indication of the degree of motility of the kidney and resulting stasis. With this method of diagnosis, the physiologic function of the renal pelvis can be judged with some degree of accuracy and the best method of treatment for nephroptosis in any case is indicated.

## COMMENT

*This method seems to have the merit of gradual distension of the pelvis. The details of having the patient placed in the standing posture instead of rising to it may be open to one objection. The mild degrees of kidney motility appear only with exertion. Nevertheless if this method increases the accuracy of diagnosis between those motilities which should be left alone and those which may be operated, it will have recognition. Too few operators seem to realize that the embryological defects underlying kidney displacement also underlie failure of the best planned and performed operations. Probably in no other kidney condition are caution and common sense more needed.*

*Surgical Endotherapy in Suprapubic Prostatectomy*

P. W. Aschner (*American Journal of Surgery*, 15:321, February, 1932) reports the use of surgical endotherapy in suprapubic prostatectomy when the operation is done in one stage. A vasectomy is done prior to this operation and vesical drainage with indwelling catheter maintained for seven to ten days. The author prefers neocaine spinal anesthesia. The bladder may be opened with the scalpel or with the endotherm knife. The endotherm needle is used for dividing the anterior commissure and for making the incision through the mucosa overlying the projecting prostate, and circumcising the urethral orifice. This incision is carried down to the prostatic capsule. The actual enucleation of the prostate is done under direct vision using closed blunt curved scissors as a dissector. The lower part of the posterior urethra is cut across with the endotherm knife. The Allis forceps are used to hold open the vesical mucosa around the cavity, bleeding vessels are caught with a long artery forceps and sealed by touching the forceps with the endotherm needle. It is not necessary to change the current for this. Tabs of tissue may also be removed by the endotherm (cutting) current. The cut edge of the vesical mucosa and its underlying muscularis are sutured down into the prostatic cavity so as to convert the prostatic pouch into a funnel wide open above and lead-

ing to the urethral stump, according to the method of Hunt, Deaver and others. No bag or packing is necessary. The bladder is closed with a tube leading from the vertex and packing for drainage to the space of Retzius and to the peritoneal reflection; tube and packing are removed in about a week. With this method there has been no severe hemorrhage, no more bleeding than often follows a simple cystostomy in any case. The wound closes completely in fourteen to twenty-one days.

## COMMENT

*This message has the advantage of enucleation of the prostate, control of hemorrhage and suture of the prostatic cavity, all under the eye as much as possible. It should decrease some of the early and late sequels so distressing to patients such as partial incontinence.*

**Pediatrics***Evaporated Milk in Infant Feeding*

C. G. Kerley (*Archives of Pediatrics*, 49:22, January, 1932) notes that his first use of condensed milk in infant feeding was at the time of the blizzard of 1888, when it was the only food available at the New York Infant Asylum in Westchester County, N. Y. When the condensed milk was used of necessity at this time, it was found that a number of marasmic infants gained weight and improved rapidly. Since that time the author has used evaporated milk (rather than the sweetened condensed milk) to a great extent in infant feeding. The process of evaporation brings about changes in the milk that render it more digestible. It can be easily adapted to the needs of individual infants by the addition of water, starch, sugar, etc. For subnormal infants, cooking the evaporated milk in the starch solution renders it easier of assimilation. In infants convalescing from diarrhea, the addition of water, starch, Karo and lactic acid to evaporated milk gives a very satisfactory feeding mixture. For the usual bottle feeding case, the author has found evaporated milk the most satisfactory substitute for mother's milk. It should not be given in too concentrated a mixture; in beginning its use with a marantic child, the strength of the mixture should not exceed 6 to 24 oz. And in normal children the author rarely uses it in a lesser dilution than the 12 to 18 oz. ratio.

*Casein in Infant Feeding*

J. Gibbens (*Lancet*, 1:288, Feb. 6, 1932) reports the use of casein in the treatment of diarrhea in the breast-fed infant. Diarrhea of this type is not due to sepsis, infection, or overfeeding, but is the more or less chronic diarrhea that Finkelstein calls "the dystrophy of the constitutionally inferior infant." In these cases the baby tends to have a bowel movement immediately after nursing. In the treatment of these cases weaning is unnecessary; the child should be given the usual number of feedings and for the usual time. Casein powder is given in amounts of a teaspoonful two or three times a day dissolved in a little water or milk. The author has treated 61 cases of this type by casein alone, and in most cases improvement in the infant's condition was noted by the second or third day. The appetite improved, the weight increased, the diarrhea ceased, and the child became less restless and fretful. The treatment was continued about six to eight weeks and then stopped. In no case did symptoms recur after this treatment. The author notes that casein is also useful as a complementary feeding for premature and debilitated infants and in the treatment of diarrhea of other types with vomiting.

### Dehydration Fever of the New-Born

F. H. Clark (*Archives of Pediatrics*, 48:798, December, 1931) reports 60 cases of dehydration fever of the new-born; 37 of the infants were males and 23 females; the average weight of the male infants was 8 lbs. 5 oz., and of the female infants 7 lbs. 8 oz. The highest temperature recorded in this group was 106.8°; the average loss of weight was 15 oz. The delivery was normal in 27 cases and operative in the remainder, including 20 cases of version. The chief symptoms in the cases of moderate severity were moderate fever, hoarse cry, dry and lusterless mucosa of the mouth and throat, dry wrinkly skin; in the more severe cases the fever was high, the cry was weak and "squeaky," and there was hypertonicity and dusky color. Prompt fall of temperature on the administration of fluids is characteristic of dehydration fever. Fluid should be given by mouth preferably, for which the author uses a 5:10 per cent. lactose or dextro-maltose solution, in severe cases, or if the infant does not nurse well, saline solution should be given subcutaneously and in enemas. Factors in the causation of dehydration fever are lack of sufficient fluid intake and overheating. Large infants should be given fluids freely in the early days of life; and average size infants losing more than 12 oz. daily should be given supplementary feedings. The overheating of nurseries should be guarded against, especially in unseasonably warm waves.

### Bacillus Mucosus Infection of the New-Born

M. Jampolis and his associates at the Michael Reese Hospital, Chicago, Ill. (*American Journal of Diseases of Children*, 43:70, January, 1932) report that an outbreak of infectious diarrhea occurred among new-born infants at the Hospital in the early part of 1930. The diarrhea in itself was not of an alarmingly severe type, but it was accompanied by severe symptoms resembling those of "alimentary intoxication" of Finkelstein, such as dehydration, stupor, icterus, pallor, and fever. There were few cases with respiratory complications, but the mortality was high. There were 34 infants involved in this outbreak; in 22 the symptoms were severe, as noted above, and 14 of these infants died. Most of the births in this group of infants were normal. The type of feeding was of no apparent significance. The stools were yellow or greenish and watery, and contained mucus and curds, but the appearance of the stools did not indicate the severity of the disease. *B. mucosus* was isolated from the nasal secretions, stomach contents, stools and intestinal mucosa of many of the cases during life or postmortem; and an hemolytic streptococcus was often found in association, which may have enhanced the virulence of the *B. mucosus*. None of the organisms usually causing infectious diarrhea in infants were found. Repeated cultures from the throat and stools of three nursery maids showed the *B. mucosus* present in practically pure culture. When these maids were relieved of their duties in the nursery the outbreaks promptly stopped, and there was no recurrence. These studies show that true infectious diarrhea may occur in infants without the presence of bloody, purulent stools; and that such outbreaks may be due to organisms not usually causing diarrhea introduced by adult carriers.

### General Paralysis Causes Large Economic Losses

Of the 52,030 patients on the books of the New York civil state hospitals on June 30, 1930, 2,305 were suffering from general paralysis. The expenditures for the preceding fiscal year for maintenance of general paralysis patients alone was about \$1,000,000. The cost of building and equipping a new State hospital for 2,300 paretic patients would exceed \$8,000,000.—*Health News*.

### Simple Prostatectomy

The address was based upon 21 years' experience of the operation of prostatectomy at Guy's Hospital, the same general features being observed in both methods of operating—namely, suprapubic and perineal.

Before the operation, said the President, the renal function must be estimated carefully, but there are other examinations to be made—namely, the form of respiration, and the local condition of the penis and urethra. The elderly man with the barrelshaped chest has also a bowed back, and the thoracic muscles are doing hardly any work. The diaphragm is doing all the work, and the prominent abdomen is produced partly by this, and partly by the development of much fat in the great omentum, in order that a counter-pressure may be provided for the diaphragm. For some time past at Guy's Hospital the massage sister has given instruction in thoracic breathing to all the patients who are going to have prostatectomy performed on them, and the improvement in breathing before and after the operation is very striking. The penis and urethra should always be most carefully examined in order to make certain, first, that there is absolute cleanliness in the parts, especially with a long foreskin, and secondly, that there is no obstruction such as is associated with mild degrees of hypospadias, and the more common one of gonorrhoeal stricture. The importance of the latter is twofold. First the actual obstruction may lead to delay in the healing of the wound, and secondly, since at Guy's from the years 1910 to 1916, syphilis and gonorrhoea occurred together in 20 per cent. of all cases of venereal infection, exacerbations of syphilis may occur after such an operation as suprapubic prostatectomy.

Of necessity a catheter is frequently used in the out-patient department at Guy's Hospital, in order to relieve the patient of urgent symptoms, and Mr. Thompson said he had never regretted its use. Undoubtedly the use of a catheter twice a day may improve the functional powers of the kidneys and make the patient much more suitable for operation.

At the operation the bladder is distended with boric lotion, till it can be felt above the pubes, and after the catheter has been removed a light tourniquet is applied round the penis, and this is removed directly the bladder has been opened. When the bladder has been exposed a roll of gauze is carefully packed round the bladder, and the viscous itself is opened by a transverse incision. There is less bleeding when veins are cut across than when they are nicked, as may happen with the vertical incision, which is of course parallel to the course of the veins. Moreover, when the bladder is opened the peritoneum comes down into its usual position, and with a transverse incision through the bladder wall the incision can be lengthened if this be desired, much more safely than with a vertical cut. During the actual removal of the adenoma of the prostate, it is desirable that the patient should be deeply under the anaesthetic. Sir John Thomson-Walker has shown how bleeding may be adequately dealt with but short of this much benefit will result from the irrigation of the bladder with liquor hamamelidis at a temperature of 110° F. Careful massage of the prostatic cavity may also do much good, expediting, as it does, the contraction of the tissues that lie round the space from which the adenoma have been removed. Messrs. Down Bros. have made for Mr. Thompson a special glass drain, with an oblique flange upon it, which is capable of being slipped up or down to the correct level, and it is introduced into the prostatic cavity which is the only part that needs to be drained. No catheter is inserted into the urethra, and cases have healed up in many cases in as short a time as 14 days without any catheter having been introduced. Especial attention is paid to two points on the operating table; first, the testicles, scrotum, and penis are brought up as far as possible on the abdominal wall, and kept there by dressings and bandage; and, secondly, 1 c. cm. of pituitrin is injected into the patient as a routine practice.

The patient is put back into bed, and sleep is, as far as possible, induced by the use of one injection of morphia. The first dressing, after the operation, is done at the end of 24 hours, the plan of packing the original dressing being resorted to, if needed. There is a good deal of shock associated with the first dressing, and an ounce of neat brandy is always given after the dressing has been completed. The patient is allowed to use what position he finds comfortable, and this is one of the advantages that are claimed for the omission of the catheter after the operation. At Guy's the practice, in Mr. Thompson's hands, is to allow the bladder to fall back into its usual position, and an anatomically correct bladder is much more likely to work naturally and physiologically than if it be anchored to the abdominal wall. An important point is also an anatomical one, that was first pointed out to the speaker by Mr. Le Vieux, of Mauritius. Across the very centre of the suprapubic wound there runs a deepish furrow, that is really a line of abdominal flexion, and this groove tends to open up the wound. Therefore, if it is desired to close the wound as soon as possible, it is essential that the patient should lie flat upon his back at the end of a fortnight with a catheter in situ, so that the

groove may be got rid of, with its tendency to open the wound, whilst the final process of closing the wound is taking place.

If bleeding should occur after the operation, as it sometimes does, a good position for the patient is that in which the buttocks are raised, and the legs and body depressed. This position causes the prostatic region to be much higher as far as gravity is concerned than it is usually, and thus the bleeding may be stopped. After the operation careful attention should be paid to getting the bowels open properly. For this purpose the laxative that the patient is accustomed to is given first, but if this fails to act then castor oil is given, and if this does not act then an enema terebinthinae is given. Ileus must be prevented, for it is very dangerous in itself, but is also dangerous as indicating that the patient is weaker than may have been supposed, and that other organs besides the bowels are failing. Therefore it must be treated assiduously. Apart from the ileus, and if it occurs, in addition to it, the lungs must be attended to. There is too great a tendency for the medical attendant to wait for signs of pneumonia. If signs are waited for, then we may wait for death to occur before the signs show themselves. By some people alkaloids are ordered, one for each separate symptom. This is a bad method of treating such cases. Far better with some old and tried medicine to anticipate symptoms, and prevent worse ones occurring.

Since the exhibition of boric crystals, which are used to fill up the wound, there has not been a case at Guy's Hospital of sloughing of the wound, but if it does occur, then there are two important items of treatment. The sloughs should never be forcibly removed. Such a procedure will only lead to further infection of the wound, and perhaps the death of the patient. It is possible that this sloughing may follow the use of indiarubber drainage-tubes, for such tubes contain free sulphur, which has its uses in certain septic urinary cases, but is not wanted after prostatectomy. The second item is this: such sloughing, especially if the slough be grey or black, may indicate that the patient is dying.

Among other points mentioned in the address, Mr. Thompson said that in a certain number of cases it is important that the wife should be kept away from the patient for two or three days after the operation, and that directly the patient is to be allowed up a carefully fitted suspensory bandage should be properly applied, as it is not unknown for orchitis to occur sometime after the operation, and even when the patient has gone home.—*The Lancet*, Feb. 6, 1932.

#### The Obstructing Prostate

Failure to recognize the fact that different pathological conditions are grouped under the convenient heading of senile enlargement of the prostate has led to much confusion, more especially in articles dealing with results obtained from various methods of treatment. Even the term enlargement is a misnomer, for in many cases of obstruction the prostate is normal in size. In others, a local enlargement may have occurred, but it can only be discovered with the help of a cystoscope by one specially skilled in this form of examination. The troubles that arise from the prostate in the later years of life are not due to a single pathological entity but to a variety of changes affecting that gland, and the causes which are responsible for these changes are imperfectly understood. Whilst it is generally agreed that the small hard prostate often found in cases of obstruction is the result of chronic inflammation, no certain explanation has yet been given of the commoner soft and definitely enlarged gland. Perhaps the most commonly accepted view is that this type of enlargement is adenomatous in character, although against this view is the fact that as a general rule adenoma appears at a period of functional activity rather than in the later years of life when this activity is on the wane. Formerly Ciechanowsky's view that the glandular increase is apparent rather than real, and due to dilatation of acini following inflammation round the ducts, found considerable favor, but of late this inflammatory explanation of enlargement has become less popular. Indeed, the only serious rival to the theory of adenoma is that advocated by Mr. Kenneth Walker in his Hunterian lecture (*Brit. Med. Jour.*, 1922, i, 297)—namely, that the enlargement is in the nature of a fibro-epithelial degeneration analogous to the condition which may be found in the female breast at the time of the menopause. According to this theory the enlarged prostate is the site of a particular form of degeneration occurring at the male climacteric and implicating the whole of the genital tract.

Where the pathology is in doubt but little progress can be made in aetiology and prevention. If the theory of adenoma be correct, no preventive treatment can be formulated until more is known of the causation of new growths in general. If, on the other hand, the enlarged prostate is an involutionary process endocrine therapy, provided that sufficiently potent extracts are available, should have some effect in preventing the onset of enlargement. It must be admitted that none of the theories of causation explains why one man who has reached the age of 60 should have developed an enlargement of his prostate, whilst

three of his fellows who have followed a precisely similar manner of life have escaped. But although enlightenment as to causation and the hope of prevention thus still lie in the future, treatment cannot be postponed. Does surgery offer the only hope of dealing adequately with the condition, or may certain cases of enlargement be amenable to other forms of treatment? On p. 788 of our present issue appears a paper dealing with the physical treatment, as practised in New York, of various prostatic lesions, amongst others the enlargement of old age. Dr. Titus and Dr. Pedersen claim that physical therapy is a valuable agent in the treatment of enlargement and is a means of postponing or even of avoiding the necessity of subsequent surgical intervention. A few months ago Dr. J. Curtis Webb claimed (*The Lancet*, 1931, i, 957) equally favorable results from the use of deep radiotherapy, diathermy, and the static wave. In foreign medical literature there are many references to the value of radiotherapy in the treatment of prostate lesions. Our own genito-urinary surgeons have been apt to regard the idea of attempting to deal with well-marked enlargement of the prostate by any form of electro-therapy as illusory. Any amelioration of symptoms has been held to be temporary and due to the periods of improvement which are the normal course of prostatic obstruction. The obstruction, they contend, is not entirely explained along mechanical lines; there is a dynamic factor in the nature of a spasm, as well as a static one in the form of enlargement. Electrotherapy may have an effect on the spasm; it can have little or none on the underlying enlargement. The position of the surgeon is easily understood. Prostatectomy has justified itself as the operation of choice in all cases of enlargement associated with obstruction. So far he has not been convinced that any form of electrotherapy is able to diminish the size of the prostate, except perhaps deep X-ray therapy given in such large doses as to be dangerous to the vitality of the intervening tissues. He is therefore inclined to view with suspicion the employment of measures other than surgical except perhaps in early cases, or in those in which an operation for one reason or another is too risky to be undertaken.

But great as have been the triumphs of prostatectomy in relieving what before the days of Freyer, McGill, and Fuller was an incurable condition, a dispassionate review of the results of prostatic surgery shows that operative treatment is associated with a mortality that is far from negligible. For this reason it is important that we should not neglect the investigation of any form of treatment that carries with it a smaller risk than that of prostatectomy; and since organotherapy has so far failed to give results the claims of electrotherapy should receive sympathetic hearing. Generally speaking, it may be applied in one of two ways; either in the form of diathermy, galvanism, static electricity, or X rays applied to the prostate as a whole, or in the form of surgery diathermy for the purpose of removing portions of the obstructing prostate, and so restoring the patient's capacity to empty his bladder. Both methods are of value provided discrimination is exercised in selecting suitable cases; it is, indeed, on account of faulty selection that electrotherapy has in many quarters failed to gain the recognition that it merits. Attempts have been made to deal by electrical means with cases that could only be satisfactorily treated by prostatectomy, and conversely patients who might conceivably have been relieved by less drastic measures have been subjected to operation. The surgeon alone is capable of recognizing the type of prostatic obstruction from which the patient is suffering, and of gauging accurately the probable effect of the measures to be adopted. Progress in non-operative treatment will need the closest collaboration between surgeon and electrotherapist. Only then will it be possible to discover what is the scope and what the limitations of electrotherapy in the treatment of prostatic conditions.—*Lancet*, Oct. 10, 1931.

#### Phenobarbital for Vomiting in Infancy

There are always infants who have persistent projectile vomiting and those who have colic. The use of phenobarbital is indicated in these cases. This drug apparently has, not only a local antispasmodic action on the pylorus and small intestine, but also a sedative effect on the "vomiting center" in the brain.

The clinical results with the use of this remedy, in the projectile vomiting of pylorospasm and pyloric stenosis and in the pain of colic, have been so striking that it is now used routinely by us in these disturbances. The success of the thick cereal diet, with added phenobarbital, in infants with pyloric stenosis or marked pylorospasm, is greater and is obtained with less worry than when increasing doses of atropine are prescribed.

Phenobarbital may be given in  $\frac{1}{6}$  grain (8 mgm.) amounts before or in each milk feeding. As the vomiting or colic improves, the phenobarbital may be administered with every other feeding, then twice a day and then stopped, resuming the original dosage if the trouble recurs.—Dr. E. J. Barnett, of Spokane, in *Northwest Med.*, Oct., 1930.



the influence of suction from the stomach, and like suction from the duodenum upon emptying of that viscous. With great ingenuity and accuracy he has devised original methods for disproving all of these theories, and appears to have performed, independently, most of the experiments which other men have undertaken in regard to this problem.

The frequency of his radiographic observations establishes a most accurate moving picture of the gall-bladder, during its digestive function. These experiments, conducted chiefly with egg yolk and milk, show a definite muscular evacuation of the gall-bladder, while this food stuff is in the stomach and duodenum. After it has passed the mid portion of the jejunum, and while it is in the ileum and large bowel, it has no cholagogue effect. Of all food stuffs, egg yolk empties the gall-bladder most rapidly and completely. Milk acts with equal celerity, but because it passes more quickly from the stomach, its action is not so prolonged.

Further study of Boyden's observations in feeding cats demonstrates that the gall-bladder contracts with each contraction of the pyloric portion of the stomach. While cholecystic function is somewhat dependent upon hormone action, still the prompt onset of biliary discharge into the duodenum after a meal has been found to be caused by nerve reflex. The hormone stimulus is more delayed and of secondary origin. The contraction of the gall-bladder brings about an inversion of its original shape. The fundus takes on the shape of the infundibulum, and the infundibulum simulates the fundus.

The relation of surgery and pathology to this work of Boyden's is at present little understood, and should be of far-reaching influence in the study of diseases of the gall-bladder and their treatment.

Pain in the chest and disturbances of the heart may be secondary to gall-bladder factors, referred through the phrenic and vagus nerves, and vice versa—gall-bladder diseases may be considered in the presence of pulmonary or cardiac pathology.

Boyden found that where egg yolk was used as the cholagogue, the best timing of the cholecystogram, to observe the complete emptying of the gall-bladder, was thirty-five minutes after eating. The rate of action in the female is more rapid than in the male. Roentgenologists in clinical work seem better satisfied with the fat-containing diet than with the egg yolk which is used experimentally.

D. H. BESSESEN.

#### When a Race Runs Amuck

We have "depended" upon war, famine and pestilence to decimate us in the past. We now fancy that we have conquered pestilence, but birth control to the point perhaps of race suicide, a self-inflicted and more virulent pestilence, appears upon the scene. So, in the *Scientific Monthly* for March, Professor S. J. Holmes, of the University of California, shows how birth control may become an uncontrollable destructive force.

The possibilities for evil residing in this force are momentous. The birth rate, unlike the death rate, can fall indefinitely. "If a remedy relieves the patient only to kill him off later unless it is widely employed, we should obviously pay some heed to the avoidance of its dangers." Professor Holmes entitles his paper: "Will Birth Control Lead to Extinction?"

There seems to be every indication that the birth rate will continue to fall. Germany's birth rate is even lower than that of France. "That the decline of the birth rate will be halted somewhere near the population

optimum can not be assumed." The incentives which have hitherto caused the rank and file of human beings to undergo the sacrifices required for perpetuating the race are seemingly passing out. "The danger of birth control is that it strikes at the root of Nature's method of regulating numbers."

Professor Holmes thinks that one must indeed be an optimist who can conceive of any factors sufficing to induce people to have children nowadays. "It may be very desirable to have children born only when they are wanted, but one can not help wondering what under these conditions might happen to the human species."

Parts of Sweden and Germany have given a demonstration of the coming wholesale situation wherein the birth rate of the lower social strata will show no more fecundity than is revealed by the birth rate of the upper social strata. That has come to pass already in certain districts of these countries.

Improvements in technique are to be reckoned with. Professor Holmes foresees a marked reduction thereby in the fecundity of a large class which is now little affected by the birth control movement. There is promise of the discovery of effective methods adapted for employment under the most unfavorable conditions of life.

A point will probably be reached among the white races where, with all classes, even the proletariat, weakened by birth control, they will be replaced by Asia's millions. Countries like distant Australia, enfeebled by birth control, will be the more helpless because of similar weakness in the protecting mother country, and will be among the first to succumb. The ancient Greeks and Romans reduced their own birth rate, drew in alien peoples, and disappeared.

"In taking over the regulation of the birth supply humanity has assumed a very great responsibility. One meets with little manifestation of concern over this responsibility in the typical birth control propaganda of the day. We are seldom reminded that the misuse of birth control has done a tremendous amount of damage and promises to do much more."

Professor Holmes, in closing his paper, emphasizes the great seriousness of the problems created by the growing practice of birth control. These problems "Will not be solved by the easy method of *laissez-faire*, nor by fulminations against the wickedness of contraception. They may prove too much for us to cope with, and then Nature will deal with us as she does with species which fail to adjust themselves to changed conditions of life."

The time will come, presumably, when the best powers of the medical profession will be pitted against a destructive force which will have gotten quite out of hand.

Then there may some day go out a call for eugenic volunteers "consecrated" to race perpetuation.

But even such a call may not be heeded by a smug race.

And then—

#### Viosterol in Psoriasis

During the past year I have been combining the use of viosterol with the usual anti-psoriatic ointments and have been much pleased with the results. The lesions present seemed to involute at a faster rate than under ointment therapy alone. As an adjuvant in the treatment of this stubborn and widespread disease, especially in those cases which are benefited by sunlight or ultraviolet light, the use of viosterol can be recommended. No untoward results were noted from its use in the dosage given over a period of months; however, it would be wise to give the drug for two months and then interrupt the treatment for a month before giving it again to prevent any possible symptoms of overdosage in sensitive patients.—Samuel Monash, M.D., N. Y. State J. M., July 15, 1931.

## Miscellany

### Believe It or Not, or, Too Good to be True

In Van de Velde's "Fertility and Sterility in Marriage," just published by Covici, Friede, Inc., we find the following interesting information on page 297:

"The modern type of coitus interruptus is a Coitus Prolongatus, in which insertion and close contact last as long as possible, until the male withdrawal, as in the traditional form. The intention—and the result, in cases where the husband is not too rapidly excited and the wife not too slow and tepid in temperament—is that the woman experiences the orgasm, whether as a result of phallic motion, or of simultaneous digital caresses. Many husbands—radiant with pride—have declared that they can give the acme of pleasure to their wives, several times, on each occasion."

What we should like to know is: Who is fooled, Van de Velde or the radiant husbands?

### The Family Doctor

In Washington, N. C., according to the Associated Press, a doctor's wife gave a little dinner, inviting to it some friends of her husband's, also doctors. Before the meal was announced one of them had been called away on a telephoned plea, two minutes later another left, as dinner was served another left, the oyster cocktail saw the departure of another, and presently even her husband was gone, and she finished the meal alone.

We wish the Associated Press would furnish the phone numbers of these extremely accommodating physicians. Most of us, if we suddenly broke a leg, or got a fish bone in our throat, would be hard put to it to know a doctor to call, and would probably have to summon an ambulance. We know specialists in throat, stomach, kidneys and heart, but all of these worthies demand that we report to their offices, and their residences are not listed in the book. The good old family doctor is passing out, and it would be an excellent thing if he would come back.—*Exchange*.

\* Paper Read at the Cleveland Medical Library Association Reception and Smoker on Saturday Evening, February 3rd, 1900

An Up-to-Date Report of Proceedings of an Up-to-Date Medical Society, by Dr. Frank E. Bunts

*First Surgeon:* I have to bring before the members of this society a report of an extremely interesting case of rupture of the liver. The patient was accidentally kicked over a fence by a mule and fell with his right side striking on a nigger head. No symptoms developed for twenty-four hours, when, the family becoming alarmed at the absence of symptoms, I was called in to see the case and at once diagnosed a rupture of the liver. The signs were somewhat obscure, but an operation made some thirty-six hours subsequent proved the correctness of my observations. The liver and portal vein were carefully sutured, the abdominal wound closed by four rows of sutures—catgut, silk, silk-worm gut, and silver wire respectively—and the patient made an uneventful recovery, the stitches being removed on the seventh day, and the patient returned to his occupation as mule driver two days later, or nine days from date of operation. In conclusion, I would say that the chief points of interest

\* Re-read at the Annual Meeting of the Cleveland Medical Library Association, January 15, 1932, by Dr. A. T. Bunts, son of the late Dr. Frank E. Bunts.

in this case are the accuracy of the diagnosis, as well as of the facts in the case, and the most excellent results following a most hazardous and desperate operation.

*Chairman:* The most interesting paper of Surgeon \_\_\_\_\_ is now open for discussion.

*Oculist:* I am sure we are very much indebted to Surgeon \_\_\_\_\_ for his most valuable contribution to surgical knowledge, and the case reminds me of a rupture of an eyeball in a well-known man about town, following an attempt to watch all the ballet girls at once. In this case I made a careful examination with the ophthalmoscope, finding marked evidence of blepharospasm, posterior synechiae and choked disc and external strabismus. The treatment consisted in a prompt removal of the eye. The cure was prompt and uneventful, and up to this date he has not attempted again to attend a ballet performance. In conclusion, I again wish to congratulate the author and the society upon his paper.

*Gynecologist:* The subject under discussion is somewhat out of my line of work, but it is a very brilliant result and reminds me of a case of endometritis fungoides complicating a Bartholinian cyst in a patient 96 years of age. In this case I removed the uterus and appendages per vaginam after excision of the cyst. She made an uneventful recovery, and has since married and feels as young as she did seventy years ago. I thank the doctor for the opportunity which his paper has given me to present this case.

*Rhinologist:* I cannot allow this opportunity to pass without referring to a case which this valuable report of a rupture of the liver has brought to mind. Some years ago, Mary G. snuffed a bean up her nose. A careful inquiry at the time failed to reveal the bean, but yesterday, or two years from date of first observation, there appeared an unmistakable bean sprout extending at the anterior nares. I at once diagnosed a sprouting bean and removed it, under cocaine. No untoward effect was produced, the patient making an uneventful recovery. The interesting feature in the case was that the patient came from Boston and had probably been addicted to the bean habit for many years. I congratulate the doctor upon his very able paper.

*Neurologist:* Rupture of the liver must call to mind of all of us that from such sudden jars we may obtain ruptures of the cerebral sinuses, or hemorrhage into the spinal canal. In a similar case to that related by the doctor, motor paralysis was present from the moment of receipt of shock incident to receipt of check for an outlawed bill. I made the diagnosis without any difficulty and offered to relieve the patient of the exciting cause. This he refused, and his paralysis was recovered from in time to take in the races the next day. Again I wish to congratulate the doctor upon his very elaborate and painstaking paper.

*Second Surgeon:* I can but endorse everything that the author has said and appreciate fully the value of the paper. I wish to take exception, however, to the means of diagnosis and to say that from the symptoms related there can not possibly have been a rupture of the liver—nor could he, in my estimation, have sewn up the portal vein without seriously interfering with the functions of the liver and bringing on an attack of the piles. In all the cases of this kind in which I have operated I have made it a point at the same time to dissect out very carefully the pile-bearing area. In conclusion, Mr. Chairman, I would say that I hope no one will think, from my remarks, that I differ in any essentials from the practice of my distinguished confrère.

*Orthopedist:* During my connection with the Hospital for Cripples I noticed very often and have records of

150 cases which show the difference in appreciation of pain in different children. In some of the cases of kyphosis a plaster bandage was well tolerated, notwithstanding the formation of decubital sores, extending down to and laying open the spine—while in others bitter complaint was made by the patients and it was necessary to remove the plaster and apply it according to an original method devised by me. The resemblance between these cases and that related in the paper this evening is very marked, and I appreciate the value of this addition to medical knowledge as confirmatory of my own experience at the Hospital for Cripples.

*Chairman:* As there is no further discussion upon this paper I would say that we are all very much pleased by the elaborate and carefully prepared discussion which it has called forth—and I will ask Surgeon—to close the discussion.

*Surgeon:* The field of surgery has been so fully covered that I feel it impossible for me to add anything to that which has been already said.—*Bulletin of the Medical Library Association*, January, 1932.

## Correspondence

### Cancer: What Everyone Should Know About It

*Editor, MEDICAL TIMES AND LONG ISLAND MEDICAL JOURNAL:* Apropos of the phrase on cancer cures in the interesting Litany given on page 97 of your March issue, the enclosed quotation on cancer cures from my recently published book entitled "Cancer: What Everyone Should Know About It"\*\* may be of interest.

Sincerely yours,

New York, March 3, 1932. JAMES A. TOBEY, DR. P.H.

"During the past century, literally thousands of alleged cancer cures have been put forward. Some of them have been arrant quackeries; some have been proposed in good faith, but have been patently ridiculous. A few have been advanced by physicians who have thought that they had actually found new cures for the disease. One or two have had a temporary vogue, and a few have lasted for some time.

"In the end all cures for cancer except surgery and irradiation have been discarded as failures. Even the most promising of the many which have been proposed, the use of colloidal lead, has been virtually abandoned, although further research along this line may possibly uncover a non-toxic metal which will destroy a cancer without injury to the patient.

"Every new remedy for cancer which is sincerely offered and presents any legitimate claims at all deserves and gets a fair trial. If it has any reasonable possibility of doing good, the remedy must first be used on animals, for if it will not cure cancers in experimental animals, it will not cure human cancer. No one would be so reckless as to try out an unproved method of treatment on human patients, unless volunteers came forward and, with full knowledge of the hazards, were willing to act as test material.

"No secret remedy is ever worth any consideration. If a person thinks he has evolved a "cure" for such an important scourge as cancer, he should never hesitate to give it to the world, as all true scientists have always done when remedies for various afflictions have been discovered. The layman should beware of the person with a secret remedy for anything, especially one which is said to have been handed down in the family, or acquired from some exotic source, such as an Indian herbalist. Remedies of this nature always belong in the pot-pourri of the charlatan.

"If a reputed cancer cure works successfully on animals and there is adequate evidence that it will do no harm, it may next be tried on inoperable cases of human cancer. No person should be deprived of the opportunity to have a malignant tumour removed by competent surgery or treated by radium or x-rays if such treatment is possible, but in those cases which have delayed too long or are inoperable for other reasons, new cures may be tried with the patient's permission. If any success is demonstrated on such cases, and the results are confirmed, the new method may then properly be tested on earlier human cancer."

\* Tobey, James A.: Cancer: What Everyone Should Know About It. Knopf, 1932.

### Blood Sedimentation

A rapid sedimentation usually indicates inflammation. Slow test rules out infection.

### International Congress on Biliary Lithiasis

The following papers will be read at public meetings which will be attended by all sections of the International Congress on Biliary Lithiasis, to be held at Vichy from the 19th to the 22nd September 1932, under the distinguished patronage of the Minister of Public Health, and at which 38 countries will be represented.

#### 1) The Sequela of Cholecystectomy

A—Clinical and Pathogenic Study of the Sequelae of Cholecystectomy—Mr. Victor Donnet, New York; Pr. Mariano Castex, Buenos Aires.

B—The Painful Phenomena Following Cholecystectomy—Pr. Castaigne, Clermont-Ferrand.

C—Surgical Indications—Profs. Gosset, et Petit-Dutailly, Paris.

D—Medical and Hydrological Therapy—Prof. Giraud, Montpellier.

E—Diagnosis by Radiology—Dr. Beclere, Paris.

#### 2) Medical and Hydro-Mineral Treatment of Cholecystitis in Biliary Lithiasis

A—Principal Indications of Gall Bladder Drainage in Biliary Lithiasis by Medical Means—Prof. Chiray, Paris; and Dr. Pavel, Bucharest.

B—Indications and Contra-Indications of Choleretics in Gall Bladder Lithiasis—Prof. Chabrol, Paris.

C—Antiseptic Medication in Gall Bladder Lithiasis—Prof. Abrami, Paris.

D—Pre- and Post-Operative Medical Care in Lithiasis—Prof. Umler, Berlin.

E—Action of Mineral Waters on the Biliary System—Prof. Piery, Lyon.

F—Sedative Physiotherapy in Gall Bladder Affections—Profs. Delherm and Dausset, Paris.

#### 3) The Cholelithiasic Liver

A—The Role of the Liver in the Pathogenesis of Biliary Lithiasis—Prof. N. Fiessinger, Paris.

B—Jaundice from a Stone in the Main Bile Duct—Prof. Brule, Paris.

C—Lesions of the Liver in Gallstones with Jaundice—Prof. Harvier, Paris.

D—Method of Exploration of the Liver in Gallstones with Jaundice—

a) chemical methods—Dr. Dieryck (Louvain)

b) radiological methods—Dr. Gilbert (Geneva)

E—Surgical Deductions in Gallstones with Jaundice—Prof. Gatellier, Paris.

*Congress Committee:* Prof. Paul Carnot, President; Professors Maurice Loepér, President of the Medical Section—Pierre Duval, President of the Surgical Section—Maurice Villaret, President of the Therapy and Hydrology Section—Drs. J. Belot, President of the Electro-radiology and Physiotherapy Section—J. Aimard, General Secretary and R. Glenard, Assistant Secretary.

Applications for tickets and Enquiries should be addressed to the General Secretary of the Congress—24, Boulevard des Capucines—Paris.

### New York Physical Therapy Society

At the annual meeting of the New York Physical Therapy Society on Wednesday evening, March 2, the following officers were elected for the ensuing year:

President, Dr. Heinrich F. Wolf; Vice President, Dr. Charles F. McCarty; Treasurer, Dr. Floyd O. Reed; Secretary, Dr. Madge C. L. McGuinness.

Executive Committee: Dr. William Bierman, Chairman; Dr. Harold M. Herring, Dr. Cassius L. DeVictoria, Dr. Leon T. Lewald, Dr. Jerome B. Weiss.

### The Treatment of Derangement of the Cartilages of the Knee-joint

L. A. Lantzounis publishes a report on a study of end-results in 142 cases of derangement of the cartilages of the knee-joint treated by operation. He states that an un torn, hypermobile meniscus is a definite entity. A deranged meniscus may occur in an arthritic joint or may be the inciting cause of arthritis on account of the constant mechanical irritation. The presence of arthritis in a knee joint, complicated by a deranged meniscus, does not constitute a contra-indication for operation, and the symptoms may be greatly relieved by removal of the meniscus. Removal of one or both menisci does not result in an unstable knee joint. The removal of an offending meniscus by operation is a better procedure than any prolonged conservative method of treatment. The relief of symptoms in uncomplicated traumatic lesions of menisci is uniformly complete following removal of the meniscus.—(Surgery, Gynecology and Obstetrics, August, 1931, liii, 182.)

# MEDICAL BOOK NEWS

Edited by WILLIAM HENRY DONNELLY, M.D.

*All books for review and communications concerning Book News should be addressed to the Editor of this department at 1313 Bedford Avenue, Brooklyn, New York.*

APRIL, 1932

## REVIEWS

### Speech Pathology

**SPEECH PATHOLOGY.** A Dynamic Neurological Treatment of Normal Speech and Speech Deviations. By Lee Edward Travis, Ph.D. New York, D. Appleton and Company, 1931. 331 pages, illustrated. 8vo. Cloth, \$4.00.

The author attempts with considerable success to present a comprehensive and scientific text-book on the causes, diagnosis and treatment of speech disorders.

The approach is a modern one and reflects Orton's views and teaching.

Travis treats the human organism as a dynamic whole. Following the theory that during stuttering the right and left cerebral hemispheres are equiposed Travis continues that the stutterer lacks a consistency in motor expression, has a broken rhythm, indicating a lack of desirable unilaterality of nervous organization. The stutterer fails to develop a sufficiently dominant gradient of excitation in the central nervous system. He lacks an efficient cerebral center or cerebral hemisphere of chief dominance.

Several causes of speech disorders considered are heredity, pathological fetal positions, birth injuries, development factors and physical and mental injuries and disease.

Several observations include that about one per cent of the school population are stutterers. Boys outnumber girls and are more apt to persist in the defect. Eighty-five per cent of stutterers begin before eight years of age. There are over one million stutterers in the United States.

There is an appendix including stimulus syllables, words and sentences for speech training.

All in all the book may be considered as an excellent contribution to the study of speech.

LAURENT FEINBLATT.

### Handbook of Anatomy

**WARREN'S HANDBOOK OF ANATOMY.** By John Warren, M.D. Text by Robert M. Green, M.D. Cambridge, Mass., Harvard University Press, 1930. 384 pages, illustrated. 4vo. Cloth, \$12.50.

As stated in one of the introductory pages, this book is adapted for dissecting and clinical reference. Unfortunately it appears that the material which the late Dr. Warren left has been used to poor advantage. There evidently was no guiding genius in the preparation of this volume, as can be judged from the inequality of space assigned to various parts of the body.

Much space is given to myology and osteology, and little is allotted to the abdominal viscera. In a two-third page description of the gall-bladder and its ducts, only twelve lines suffice for a delineation of this important structure, the remaining twenty-two containing a poor resume of the physiology of the biliary system, a few lines on obstructive jaundice, and a sentence on Greek mythology.

One however is impressed by the very accurate and careful drawings of original dissections. The pictures though anatomically exact are not of a type that will form a permanent visual image on one's calcareous fissure. Visualization of material described in a text can be obtained only with the aid of impressive drawings. This is especially applicable to the clinician who has no cadaver in front of him for immediate reference. For an anatomist this book may be of some value. For the student or clinician with only a fair concept of anatomical details, this volume is not so practical.

ALFRED H. IASON.

**Memoranda on Medical Diseases in Tropical and Sub-Tropical Areas**  
**MEMORANDA ON MEDICAL DISEASES IN TROPICAL AND SUB-TROPICAL AREAS.** (Fifth edition). London, His Majesty's Stationery Office: New York, British Library of Information. 1930. 300 pages, illus. 12mo Boards, \$1.55. Postage extra.

This little volume of approximately 300 pages is written in very terse, clear language and is most amply illustrated.

The subjects are arranged alphabetically and are discussed according to occurrence, etiology, symptoms, differential diagnosis, prophylaxis, treatment.

The work is a reliable handbook for office use and offers many helpful suggestions in the treatment of some very common diseases occurring in this section of the country.

HENRY M. FEINBLATT.

### Studies of Nutrition

(GREAT BRITAIN) Privy Council, Medical Research Council. **Studies of Nutrition. The Physique and Health of Two African Tribes.** By J. B. Orr and J. L. Gilks. London, His Majesty's Stationery Office, (New York, British Library of Information) 1931. 82 pages. 8vo. Paper, 55c, postage extra. (Special Report Series No. 155.)

The British Medical Research Council has published an interesting report of nutritional studies made among two native tribes in the Kenya district of Africa. The purpose of the investigation was to find measures of improving the health of these tribes in order to increase their economic value to the British Government. One tribe, the Masai, possessed distinct carnivorous habits and subsisted chiefly on milk, meat and raw blood. These food habits are the result of the tribe's being largely of a pastoral character whose sole occupation is to tend large herds of cattle, sheep and goats. They were compared with the Akikuyu, a Bantu tribe, who are agriculturists and live almost exclusively on a vegetarian diet, consisting of cereals, tubers, plantains, legumes and green leaves.

The tribes showed, in these studies, striking differences in physique. The carnivorous tribe was, on an average, 5 inches taller, 23 pounds heavier, and 50 per cent. greater in muscular strength than the vegetarian tribe. Regarding incidence of disease, bony deformities, dental caries, anemia, pulmonary disease and tropical ulcer were much more prevalent among the vegetarians. On the other hand constipation and rheumatoid arthritis were found more common among the carnivorous group. The vegetarian diet was found to be very low in Ca. i.e. 0.3 gram in the daily intake as compared with the assessed requirement of 1 gram. Blood calcium studies in these subjects showed them to be slightly lower than Europeans. Addition of Ca. salts to their diets brought the blood figures to the normal 10 mgms.

A short feeding experiment was arranged at a Reformatory. The addition of maize, bone meal and milk to the diet resulted in an increase in the rate of height of the vegetarian children of 40 per cent as compared with the control group. Recommendations were made for improving the dietary habits of both tribes by creating a more balanced diet.

It is interesting that two obscure African tribes should reap the benefits of such valuable scientific researches. Similar fundamental studies are commonly made by vegetarians in this country for improving the strains and physique of cattle stock, horses and other domestic animals. It seems strange, however, that the human members of our country, have never come under such close scrutiny and study by our dietetic experts.

WILLIAM S. COLLENS.

### Surgical Pathology of the Diseases of Bones

**SURGICAL PATHOLOGY OF THE DISEASES OF BONES.** By Arthur E. Hertzler, M.D. Philadelphia, J. B. Lippincott Company, (c.) 1931. 272 pages, illustrated. 8vo. Cloth, \$5.00. (Hertzler's Monographs on Surgical Pathology.)

Professor Hertzler's Monograph on Surgical Pathology of the Diseases of Bones is an excellent, concise elucidation of this much neglected subject. It is a masterly presentation, particularly useful to the surgeon of today who wishes to avoid useless and mutilating operations and truly save life and limb. The surgeon

must come to realize the necessity of learning more pathology. This is nowhere more essential to his patient than in the diseases of bones. To this end this book is admirably suited. The book is well bound, the paper of fine quality, the illustrations numerous and excellent. The classification is simple and a great memory help. References are plentiful for those wishing to refer to the literature under the various headings.

M. E. MARTEN.

**Insect Menace**

THE INSECT MENACE. By L. O. Howard. New York, The Century Co., [c. 1931]. 347 pages, illustrated. 8vo. Cloth, \$3.50.

If we are to observe the old adage—"it's the little things that count," then we must be aware, among other things, of the existence of a vast Insect Empire. That over 100,000 distinct species of insects are recognized is short of overwhelming. We read of strictly subterranean insects that spend their entire lives underground; of the chemical alterations in the soil induced by insects through fertilization and bodily decay. Whatever bearing such data may or may not have on medical science, we must admire those who so patiently and successfully discover the breeding places of these minute creatures, and who so accurately present such extensive records of their life-habits.

After perusing this book, the medical man may ask himself: First, in the face of such limitless myriads and kingdoms of insects without danger of mass starvation, can we humans find justification for human overpopulation on that basis. In other words, is not human overpopulation a foundless fear rather than an actual possibility?

Second, in our zeal for defending the case for Birth Control, do we not overlook one important fact, namely, that insects are our dangerous rivals for the food supplies of the world, and that by organizing our attentions on them rather than on each other wonders may be accomplished?

EMANUEL KRIMSKY.

**A Non-Surgical Consideration of Prostatic Enlargement**

A NON-SURGICAL CONSIDERATION OF PROSTATIC ENLARGEMENT including a lecture on The Myth of the Bladder Neck Bar. By Edwin W. Hirsch, M.D. St. Paul, Minn., Bruce Publishing Company, 1931. 79 pages, illustrated. 8vo. Boards, \$2.00

This is a very interesting little monograph which may be read in an hour or less. It undertakes to defend two arguments: first, that obstructive lesions of the prostate of all sorts are fundamentally inflammatory in their nature and secondly, that practically all cases may be relieved or even cured by massage. The first item has merit and could muster considerable support from other observers. The second item is in the opinion of the reviewer, and to put it mildly, somewhat overdrawn. At any rate, any one interested in urologic surgery should, and we believe, would enjoy reading the book even though he might, and we believe, would disagree with most of it.

N. P. RATHBUN.

**The Doctor Looks at Life and Death**

THE DOCTOR LOOKS AT LIFE AND DEATH. By Joseph Collins, New York, Farrar & Rhinehart, Inc., [c. 1931]. 315 pages. 8vo. Cloth, \$3.00.

The reviewer had certain misgivings when he approached this profound and dramatic title—"The Doctor Looks at Life and Death." So mysterious a title can convey so many different meanings. A perusal of the contents, however, proved a surprise for the first part of the book dealt with Dr. Collins' dislike of the Church; the second part, with neurological case histories.

He hates the Church and all religious organizations, and yet he is deeply religious even though he does not feel the urge of signing up with any sect or worshiping in a church. The former he regards as political and hypocritical; the latter, as distinctly personal property. He also blames the Church for fostering crime and racketeering. In one part he tells us that "the Methodists and Baptists . . . forced prohibition upon us, and by so doing gave law and order a knockout blow." In another chapter he states that the "majority of the racketeers are Italians and Jews because they are brought up in religion."

The steady decline in the force of religion he attributes to the obstinacy and inflexibility on the part of the Church to recognize the good that science has done. He insists that Birth Control be enforced among the diseased and the depraved, and that breeding be encouraged by every means among the better classes. "Instead of building cathedrals and buying cosmetics we should put the money into a community fund to stake healthy, intelligent mothers." He attacks the Church because it has repeatedly chosen to tell physicians that it alone is privileged to advise one how to regulate his sexual desires.

While this book offers us fascinating reading, it can hardly find its place in one's library among the classics. In this work Dr. Collins has not portrayed the reasoning doctor with his cold facts; but has resorted to the more simple human emotions to

present his case. For that reason his expressions appear more vivid and more colorful. At times he impresses one as a religious who has suddenly turned anti-. "Rambles through one's emotions" might have been a more fitting title for this interesting book.

EMANUEL KRIMSKY.

**The Morbid Personality**

THE MORBID PERSONALITY. Psycho-analytical studies in the structure of character and personality. By Sander Lorand, M.D. New York, Alfred A. Knopf, 1931. 181 pages. 8vo. Cloth, \$2.50.

Psychoanalysis has permeated every field of human behavior. The physician, the educator, the jurist, the sociologist, and the general intelligent layman, is profoundly concerned with it. Psychoanalytic literature is an extensive field which is reached by only a few. Hence the need for a concise accumulation of psychoanalytic facts, and interpretation of these facts by a competent man. This has been the object of the author in writing this book. It is a tremendous task, but successfully handled by the author. The book is highly recommended to all who are interested in an appraisal of the great philosophical work, and to those who may wish to get an understanding of the great field of the mysteries of human conduct that has been explored by the genius of Freud.

IRVING J. SANDS.

**Psychopathic Personalities**

PSYCHOPATHIC PERSONALITIES. By Eugen Kahn. Translated from the German by H. Flanders Dunbar. New Haven, Yale University Press, 1931. 321 pages. 8vo. Cloth, \$5.00.

The psychopathic personalities have been a source of tremendous interest to humanity, because of their social implications, their innate scientific problems, and their unusual mode of conduct. The author has attempted to interpret their behavior in a psychiatric manner. He has dealt with the subject in an exhaustive manner, and has discussed both the clinical as well as the dynamic factors that underlie the behavior of the large group of human beings whose behavior has puzzled everybody. It is of especial interest to the psychiatrist, the jurist, the social worker and the sociologist. It is an excellent work, and one that should meet with a favorable reception by the medical profession.

IRVING J. SANDS.

**Evolution of Facial Musculature and Expression**

EVOLUTION OF FACIAL MUSCULATURE AND FACIAL EXPRESSION. By Ernst Huber, Ph.D., M.D. Baltimore, The Johns Hopkins Press, 1931. 184 pages, illustrated. 4to. Cloth, \$2.50.

This volume of 184 pages, including about 19 pages of bibliography, covers the historical notes relative to facial muscles and facial expressions and the evolution of the facial muscles from the lower vertebrates on up to man.

Dr. Huber gives us here a brief summary of the work he has done over a period of 18 years. The arrangement of the data represents the systematic manner in which he has approached this subject.

We cannot but envy him the fun he must have had in investigating a subject so interesting.

The book is profusely illustrated and should stimulate further research in this very fascinating subject.

HERBERT T. WILKE.

**The Story of Medicine**

THE STORY OF MEDICINE. By Victor Robinson, M.D. New York, Albert & Charles Boni, [c. 1931]. 527 pages. 8vo. Cloth, \$5.00.

"The Story of Medicine" by Victor Robinson is, to the reviewer's mind, the best compendium of Medical History in one volume that has ever been written. Its title is to be taken literally, for he has actually written a romance of the history of medicine from the stone age to the present era. Dr. Robinson has subdivided his subject into twelve chapters, into which he has crammed all the salient interesting facts, and even fancies of medical lore and science through the ages.

In addition to all this Dr. Robinson has correlated medical progress with the economic, artistic and philosophic conditions of each period, so that the reader can readily visualize and actually participate in and be a part of the life of each age and country which he discusses.

All in all, this is a very good book and is very highly recommended.

WILLIAM RACHLIN.

**Phylaxis**

PHYLAXIS. By the late G. Billard, M.D. Translated by H. Gainsborough, M.D., F.R.C.P. New York, Macmillan Company, 1931. 77 pages. 8vo. Cloth, \$3.00.

The author presents a hypothesis and some experiments to support the idea of phylaxis (protection) by means of other than the production of specific antibodies.

The work is concerned with the neurotoxins, as diphtheric toxin, tetanus toxin, and snake venoms. The writer's conception of prophylaxis is not put forward with any idea of supplanting our ideas on immunity. It is highly interesting reading.

HENRY STRAUS.

#### Female Sex Hormonology

FEMALE SEX HORMONOLOGY. A Review. By William P. Graves, A.B., M.D. Philadelphia, W. B. Saunders Company, 1931. 181 pages, illustrated. 8vo. Cloth, \$3.50

Graves' review of female sex physiology is a concise, clear, clean-cut exposition of the discoveries of the present brilliant era of research. It does not pretend to contain anything original, yet nothing like it has ever been done.

Recent material is arranged in excellent order and a valuable glossary and bibliography are included. A readable and handy volume which speaks with authority.

CHARLES A. GORDON.

### BOOKS RECEIVED

*Books received for review are acknowledged promptly in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.*

ENGLISH-GERMAN AND GERMAN-ENGLISH MEDICAL DICTIONARY. By Joseph R. Waller, M.D., and Moritz Kaatz, M.D. Sixth edition, part 2. Wien, Franz Deuticke, 1932. 238 pages. 16mo Cloth, 7 marks.

PUBLIC HEALTH ORGANIZATION. Report of the Committee on Public Health Organization, E. L. Bishop, M.D., Chairman. White House Conference on Child Health and Protection. New York, The Century Company, [c. 1932]. 346 pages. 8vo. Cloth, \$3.00.

SURGEON OF THE SEAS. The Adventurous Life of Surgeon General Jonathan M. Folts in the Days of Wooden Ships. By Charles S. Folts. Indianapolis, The Bobbs-Merrill Company, [c. 1931]. 351 pages, illustrated. 8vo. Cloth, \$3.75.

THE WISDOM OF THE BODY. By Walter B. Cannon, M.D., Sc.D. New York, W. W. Norton & Company, Inc. [c. 1932]. 312 pages, illustrated. 8vo. Cloth, \$3.50.

SURGICAL ERRORS AND SAFEGUARDS. By Max Thorek, M.D. Philadelphia, J. B. Lippincott Company. [c. 1932]. 696 pages, illustrated. 8vo. Cloth, \$10.00.

SURGICAL PATHOLOGY OF THE FEMALE GENERATIVE ORGANS. By Arthur E. Hertzler, M.D. Philadelphia, J. B. Lippincott Company, [c. 1932]. 346 pages, illustrated. 8vo. Cloth, \$5.00. (Hertzler's Monographs on Surgical Pathology.)

DISEASES OF THE MUSICAL PROFESSION. A Systematic Presentation of Their Causes, Symptoms and Methods of Treatment. By Kurt Singer, M.D. Translated from the German by Vladimir Lakond. New York, Greenberg: Publisher, [c. 1932]. 258 pages. 8vo. Cloth, \$3.00.

THE PRACTICAL MEDICINE SERIES. Comprising Eight Volumes on the Year's Progress in Medicine and Surgery. Series 1931. General Therapeutics. By Bernard Fantus, M.S., M.D. and Louis B. Kartoon, B.S., M.D. Chicago, The Year Book Publishers, 1932. 467 pages, illustrated. 12mo Cloth, \$2.25.

HOSPITAL. By Rhoda Truax. New York, E. P. Dutton & Co., Inc. [c. 1932]. 312 pages. 12mo Cloth, \$2.50.

WHEELER AND JACK'S HANDBOOK OF MEDICINE. Revised by John Henderson, M.D., F.R.F.P.S. Ninth edition. New York, William Wood & Company, 1932. 654 pages, illustrated. 12mo Cloth, \$4.00

#### Modern Hospital Construction

This is not a time to contemplate with equanimity the demands of a community for a new hospital. In this country hospital beds are admittedly wanted, and badly wanted in many places, but, as far as possible, we must mostly rely upon modifications, annexes, and partial rebuildings and adaptations, even though the policy of providing a whole new hospital would be the best course. Indeed, it might be in the long run the more economical direction of effort, but the general financial position does not allow of the expenditure of large sums to-day in order that still larger sums may be saved later. To many, therefore, it may seem inopportune just now to call attention to the modern principles of hospital construction, but there are reasons for the other view. First, we can contemplate the ideal and learn lessons for the future without the temptation to spend; and, secondly, we can from scrutiny of the latest manners in hospital construction derive valuable lessons for renovation.

The last issue of *Nosokomeion*, published in October, 1931, contained a series of articles on modern hospital construction by leading specialists in England, America, France, Germany, and Italy. These show in a most suggestive fashion that fundamental changes in hospital planning have been taking place recently upon American models. And though the details of structure vary with the architectural tendencies of each country certain common principles have been evolving. The pavilion system which long remained the standard type is no longer followed in an invariable way. The ward units are more often placed vertically one above the other, rather than side by side as formerly. The sanitary

tower is also disappearing though it had many architectural advantages. Taller buildings, smaller wards, larger window space, and a more ample provision of balconies are among the more obvious changes noticeable in modern hospitals. They have been brought about by a desire for efficiency and economy expressed by a more compact plan and a more concentrated arrangement of the engineering services, and they take note, *inter alia*, of such different things as modern views on cross-infection, the desire for greater privacy and comfort for the patients, and safety as evidenced in new methods of fireproof construction. In all these things no doubt the influence of American hospital planning has been a powerful factor in bringing about changes in European countries. For example, the Columbia-Presbyterian Medical Centre in New York City, an illustrated account of which was published in a special supplement to *The Lancet*, is echoed in France by the designs for the Hospital at Clichy. But in this building the balcony projection on the cantilever principles has been made a strong feature of the design, particularly on the tenth and eleventh storeys where it is continuous. These two top storeys not only form an effective horizontal line to the top of the building but provide open-air lying-space for tuberculous patients. The balcony principle has been carried a step further in another French example, the hospital at Colmar, where the terrace type of balcony has been employed in an ingenious way. The storeys are set back one behind the other on the south side to provide balconies for the patients, but the building has only six storeys making no attempt to "sky-scape"; to employ usefully the width of the lower floors, a series of overhangs has been built. This was made possible by using reinforced concrete and shows that in times to come the architects of hospitals must take this form of building into consideration. Many of the points mentioned appear in graphic illustrations and ground plans which are reproduced in this journal, but the chapter in *Nosokomeion* on German hospitals is not illustrated. This is unlucky for some of the most interesting of modern hospitals have been erected in that country. But as Herr v. A. Lommel, the writer of the chapter points out, the present economic crisis may result in a central corridor type of plan. But it is to be hoped that the small ward, facing south and opening off a north corridor, will continue in favour. Many of the changes in hospital construction to which attention has been drawn are well illustrated in the designs for the new Freemasons' Hospital, at Ravenscourt Park, of which an excellent sketch plan appeared in the *Times* on Wednesday last.

In England among the most interesting developments noted in the hospitals selected for notice is the increased use of the type of ward in which the beds are placed parallel with the walls, with glazed metal screens separating the heads of the patients. Mr. C. E. Elcock, who is responsible for the chapter on the present position of hospital construction in this country, describes and illustrates the variation of this type which he names the "verandah" ward (because no verandah is required), with large horizontal window spaces. The right proportion of window space to wall space is largely a matter of opinion, but we should ourselves consider it important to avoid very large windows except towards the south. The lively interest taken in hospital planning in Europe and America and the evident desire for new ideas in architecture to keep pace with progress in medical science must be welcomed as signs of healthy activity. But modern hospital planning has changes, almost revolutionary in character, to be prepared for. The increase in special classes of patients and the probability that sooner or later rich and poor will, to an increasing extent, be treated under one roof, on some graded principles of fee, demand variety and flexibility of planning. The treatment of out-patients in special departments will affect the hospital planning of the future radically, and the need for expansion in these directions must necessitate ample open space round any new hospital buildings. With regard to this point past history and present circumstances show only too clearly the folly of producing a cast-iron plan with all spaces allocated. There is much to think about, and it is to be hoped that thought will be taken during the breathing space enforced upon us by poverty. The time will come; let us be ready.

*The Lancet*, Jan. 23, 1932.

#### Protection from X and Gamma Rays

The death in Vienna early last week of Prof. Guido Holzknecht as a result of x-ray burns is, we may hope, one of the last tragedies of the unprotected worker. For Holzknecht, to whom medicine owes more than to anyone else the exploitation of Rontgen's discovery, began his work more than 45 years ago, when the cumulative effects of prolonged exposure to x-rays was not even thought of. Gradually he lost all his fingers and one of his arms, his death being due to secondary cancerous deposits. The present-day worker should be immune from harm if he follows conscientiously the precautions laid down at Stockholm three years ago, and now revised by the International X-ray and Radium Protection Commission, which met in July

at Paris on the occasion of the third International Congress of Radiology. This Commission includes representatives from Great Britain, France, Germany, Italy, Sweden, and the United States, the British representatives, Mr. G. W. C. Kaye, D.Sc., and Dr. Stanley Melville, also being the hon. secretaries. It may be recalled with some little pride that the international recommendations were originally based on the proposals of the British Protection Committee, this country being the first, some ten years ago, to frame recommendations designed to promote the greater safety and well-being of the *x-ray* and radium worker. In his Mackenzie Davidson memorial lecture, delivered in February, 1922, Dr. Kaye noted the persistency of hospitals in regarding the radiologist as akin to the mole or earthworm, and consigning his department to an ill-ventilated basement. On its round of investigation the British Committee had then found departments in which, with protective appliances in full swing, there was enough scattered radiation to show the bones of the hand on a screen carried round the room. Under the leadership of Sir Humphry Rolleston, and with the co-operation of the Teddington Laboratory, the British committee worked out standards of protection against X and gamma rays, in terms of millimetres of lead and barium bricks, inspecting a hundred or more workrooms to see how their advice was received. Dr. Kaye was even then hopeful that the bogey of *x-ray* dangers would soon be removed, and his hope has been justified. The influence of the international recommendations has been profound and world-wide, and now practically every civilized nation has taken steps to form a protection committee and to issue its own recommendations.

The experience of the last three years has led to only relatively minor changes in the international recommendations, and these are mainly accounted for by the growth in power of *x-ray* equipment. As a whole the recommendations are largely unaltered, which is a tribute to their utility and practical character. In the first section, dealing with working hours, there is a new paragraph suggesting the desirability of a twice-yearly medical and blood examination of operators, particularly those working with radium. The gradual tendency to increase, in *x-ray* therapy, the kilovoltage on the tube is met by a new table giving lead protective values for *x-ray* tubes from 75 kilovolts to as high as 400 kilovolts, the values ranging from 1 to 15 mm. thickness of lead. In diagnostic work the importance is stressed of reducing palpation with the hand to a minimum. The difficulty experienced by manufacturers in securing the necessary flexibility in protective lead-rubber gloves which offer a reasonable measure of protection is met by a small reduction in the lead equivalent recommended of from  $\frac{1}{2}$  to  $\frac{1}{3}$  mm. lead. The necessity for effective earth shielding as a precaution against electric shocks with present-day high-powered and condenser-smoothed *x-ray* equipment is emphasized. A further warning relates to the special electrical precautions which should be taken in rooms where anesthetics are used in conjunction with *x-rays*. The use of non-inflammable *x-ray* films is encouraged, and where inflammable film is employed precautions should be adopted which extended experience has suggested—for example, the isolation of large stocks of film. As regards radium the bulk of the earlier recommendations stand, the chief change being a reduction in the amount of lead protection suggested for the storage of large quantities (several grammes) of radium, the previous figure recommended proving to be impractically large.

The recommendations of the International Commission are obviously of value only in so far as they can conveniently be carried out, and their authority as a whole would be impaired if they contain any which are habitually and generally disregarded. In the opinion of Dr. Ffrangcon Roberts the requirements are excessive, particularly in regard to ventilation and the lining of walls, and he is to set out this view next week at a meeting of the British Institute of Radiology. It may be noted that the International Commission will next assemble in 1934 at Zurich, under the aegis of the fourth International Congress of Radiology, when the recommendations will be again reviewed in the light of experience, and such suggestions as may have been received in the interim. We understand that copies of the revised recommendations may be had free on request to the Director of the National Physical Laboratory, Teddington, Middlesex.—*Lancet*.

#### Measles in London

#### A New Interpretation of the Function of Vitamins A and D

In view of the immense amount of advertising calling attention to vitamins (especially Vitamin D) and to light therapy (lamp and sunlight treatment) it should be noted that the last word has not been said with regard to the factors involved. An article appearing in the April, 1931 issue of the *American Journal of the Medical Sciences* points out that certain functions and properties have probably been "too hastily ascribed to (some of) the elusive vitamins." The relation of the vitamins A and D in cod

liver oil to bone growth and rickets is given a new interpretation.

For the benefit of those who do not have access to the article mentioned the following abstract of some of its main points has been prepared. A reading of the original is recommended.

The author, H. A. Harris, D. Sc., research worker in the Institute of Anatomy, University College Hospital, University of London, reviews the history of the therapeutic uses of cod liver oil with special reference to rickets and questions our "misplaced optimism in regard to vitamin therapy and the present state of knowledge of the chemistry of bone."

The remedial properties of cod liver oil, he points out, enjoyed a wide reputation among the laity in various parts of the world for countless years before scientists recognized its value. He claims that fat-soluble Vitamin A can not be "growth-promoting" since clinically a non-growing animal or child can not acquire rickets. The water soluble Vitamin B, he believes, is the factor controlling growth while the true purpose of Vitamin A is to "control differentiation of all tissues (including bone) for adequate function." The small amount of Vitamin A in plants is attributed to their small need for masses of protoplasm having numerous functions. The cod fish, on the other hand, requires maximum concentration because of its enormous supply of eggs needing this material for their own multiformity of parts for diversity of function.

Another fallacy attacked by the author is that Vitamin A evolves through a vegetable cycle from the sun, i. e., from the sun to marine plants, to the fish living on the plants. It is shown that the cycle of Vitamin A is really carnivorous since fish do not live exclusively on vegetables, but prey on each other and on newly hatched and very young fish.

Sun worship, the craze for ultra violet lamps and window glass, and Vitamin D as an addition to foods are said to be "full of danger both to the community and to sound thinking." A wholesome variety of good fresh animal and vegetable foods requires no addition of synthetic vitamins, he says, except as a "temporary palliative in case of those too poor to buy fresh food, too ignorant to know fresh food, too mean to pay the price for fresh food."

The dangers of overdosage of Vitamin D are emphasized as promoting senescence, old age, and calcification in cartilage, ligaments, tendons, and arterial walls. Clinically life insurance companies recognize that residence in the tropics with exposure to undue sunshine leads to premature senescence in the white man. In the normal growing animal calcification of cartilage and nothing more than calcification is controlled by Vitamin D, sunshine, ultra violet light or ergosterol.

Three distinct processes are shown to be involved in the problem of growing bone:

1 Growth of cartilage—a relatively simple undifferentiated tissue—depending upon a supply of Vitamin B for its growth.

2 Calcification of cartilage caused by the cessation of growth of cartilage. The process of senescence is speeded up by Vitamin D, ultra violet light and ergosterol.

3 True bone formation which can only take place in the presence of an adequate supply of blood-borne fat soluble Vitamin A. If the supply is diminished or limited osteoid tissue is laid down instead of true bone.

Rickets as a disease involves all three of these processes; the growth of cartilage is excessive, the calcification of cartilage is defective and the differentiation of true bone is imperfect. The processes are in part controlled by Vitamins B, D and A, respectively. Cod liver oil alone gives a consistently cheap, adequate and balanced supply of both D and A vitamins. "Exposure to sunshine is not necessarily the only or the most important element involved in the prevention of rickets."—*Health News*. therapeutic agent of real value—will be able to exert its full influence, unhampered by abnormal conditions of body fluids due to faulty diet. Recently observations have been made on two tribes in Africa, living under conditions favorable for study. The diet of one tribe consisted chiefly of cereals and was deficient in calcium and vitamins A and D. The diet of the other tribe consisted of meat, milk, and raw blood. In the tribe on the cereal diet pulmonary conditions, bronchitis and pneumonia, accounted for 31 per cent of all cases of sickness, tropical ulcers 36 per cent, and phthisis 6 per cent, compared with a percentage of 4, 3 and 1, respectively, in the tribe on the meat, milk, and raw blood diet. A recent survey in Scotland showed that in a large proportion of families the diet did not supply enough minerals to maintain the maximum rate of growth. The position was worse in the case of iron. We need more information dealing with the amounts of different nutrients required for optimum growth in children and as to the amounts required in diets in common use. It has been suggested that diseases such as gastric ulcer, constipation and its sequelæ, rheumatism, anemias, high blood pressure, and cardiac and nephritic disorders, may originate in dietary errors. Here comprehensive studies are required.—*British Medical Journal*, May 23, 1931, ii. 3672.

